United States
Department of
Agriculture

Forest Service

Alaska Region
Report
Number 147

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Draft Alaska Regional Plan

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Alaska Region

Dear Reviewer:

During the past year we have solicited your ideas for the Alaska Regional Plan. As you know, the planning process was extended because of the Alaska Lands Bill issues including pending expiration of the Secretarial withdrawals covering much of Alaska at the time. We resumed the Regional planning process after the Alaska Lands Act passed in December of 1980.

Forest Service planning is guided by the National Environmental Policy Act (NEPA) of 1969 and the Renewable Resources Planning Act (RPA) of 1974 as amended in 1976 by the National Forest Management Act (NFMA). This legislation directs the Forest Service to establish National, regional, and local resource goals and objectives based on periodic assessments of the future supply of and demand for renewable resources from public and private forest and range lands.

During RPA planning, national objectives, or targets, are set for the Forest Service's share of the production of those goods and services. This was last done in 1980 and will be revised again in 1985. Objectives from the current program are then distributed to the various Forest Service Regions. The Regional Plan (enclosed) displays the distribution of those Regional objectives to the National Forests and establishes planning direction to guide Forest planning. It also establishes certain standards and guidelines for management activities identified in the NFMA Regulations and for selected regional issues and concerns. Enclosed in this package you will find:

Draft Environmental Impact Statement (DEIS);
Draft Regional Plan (DRP).

This Regional Plan is the product of a dynamic and evolving planning process that builds upon past efforts such as the Southeast Alaska Area Guide and the Tongass Forest Land Management Plan. Many will recognize the contribution of these projects to the Regional Plan. That is as it should be. Your past efforts to assist us in directing our management has been invaluable. The worth of your suggestions is shown by the amount of direction that continues to be sound for today's situation.

You may ask - "What will become of the Southeast Alaska Area Guide? The Regional Plan seems to take its place." In our existing planning process, the Area Guide will be replaced by this Plan. However, we are aware of the public ownership in the Guide and have incorporated its direction in this document. In some cases, policies are modified and/or new policies added to reflect today's needs. The Area Guide policies which are more specific than appropriate for this level of planning have been referred to the Forest planning process for review and amendment. Unless altered through the Forest planning process these policies remain as firm direction.

Between now and November 6, 1981, I invite your review and comment on the Draft Environmental Impact Statement (DEIS). Your comments on the DEIS will help us produce a Final Environmental Impact Statement which will in turn influence the Final Regional Plan.

If you have any questions or comments, please feel free to write to me or any of our Forest Supervisors.

John A. Sandor
Regional Forester
ATTENTION: Regional Plan
USDA Forest Service
P.O. Box 1628
Juneau, Alaska 99802

Sincerely,

JOHN A. SANDOR
Regional Forester

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CHAPTER I - INTRODUCTION

This Regional Plan is the Forest Service's effort to bridge between national direction contained in the RPA Renewable Resources Program and the programs of the Forest Service in Alaska. It represents the Service's continuing resolve to manage the public wealth of the National Forests of Alaska in a way that recognizes both its wildland uniqueness as well as its productivity and, in doing so, be responsive to local, regional and national needs. The Plan likewise recognizes the role of the Forest Service's State and Private Forestry programs of helping others manage their lands under sound resource management principles. The Plan acknowledges and illustrates the guiding fact that good management is founded in a strong forward-looking Forest Service research program.

This Regional Plan is the product of a dynamic and evolving planning process that builds upon past efforts such as the Southeast Alaska Area Guide and the Tongass Forest Land Management Plan.

The activities of the Forest Service are directed through legislation and planning. Legislative direction is primarily National in scope, while planning direction extends from the National level to the local level. Legislative direction is summarized in Appendix C. Appendix D contains a discussion of the Alaska Lands Act and Forest Service programs.

A. Forest Service Organization

The Forest Service is organized into three major units: the National Forest System, State and Private Forestry, and Research.

1. THE NATIONAL FOREST SYSTEM includes the National Forests, National Grasslands, Land Use Project Areas and other related lands for which the Forest Service is assigned responsibility.

It is charged with managing all resources of these lands under the principles of multiple use and sustained yield to insure that products and benefits therefrom will best serve local and National needs of the people. In Alaska, the National Forest System is composed of the Tongass National Forest and the Chugach National Forest.

2. STATE AND PRIVATE FORESTRY seeks to strengthen and improve the management capabilities of State forestry and allied organizations to increase their effectiveness in protecting and enhancing environmental values on State and private forest lands. It also cooperates in intergovernmental planning such as river basin studies.

3. RESEARCH maintains a research program coordinated with and geared to management needs in attaining basic Forest Service objectives. Research knowledge is available to all interested agencies, institutions and individuals.

B. Forest Service Planning

To put the Alaska Region Plan into proper perspective, it is important to have a general understanding of how it fits into the overall Forest Service planning process. As required by the Renewable Resources Planning Act and related planning regulations, the Forest Service has a three-level integrated planning process consisting of:

National	RPA Assessment and Program
Regional	Regional Plan
Local	Forest Land and Resource Management Plans for the National Forests
	State Forest Resource Plans developed by the State for State and private land
	Research Plans

The planning process is characterized by a continuous cycle that must be viewed with a time perspective. Each plan has a special relationship to other plans prepared both before and after it. The RPA Program will be updated every five years. All other plans will be examined at least every five years and updated, as needed, to reflect better data, needed changes, and results of other plans. These interrelationships are described below:

1. RPA ASSESSMENT AND PROGRAM

Every 10 years, a comprehensive national assessment is made of the forest and rangeland renewable resource situation -- timber, range, water, fish, wildlife, outdoor recreation, and wilderness. Both short-range and long-range projections are made of future supply and demand for each of these resources in the RPA Assessment. The findings of the Assessment are then used to help determine the desired level of future outputs resulting from Forest Service programs (National Forests, Research, and State and Private Forestry). Alternative levels of outputs and associated costs are examined in the RPA Program which is prepared every five years. Based on an analysis of these alternatives, along with consideration of public views, the Secretary of Agriculture decides upon a Recommended RPA Program for the Forest Service. The Recommended RPA Program along with a Presidential Statement of Policy are transmitted to Congress. The Congress may accept or revise the Statement of Policy. The final Policy Statement and Program serve as the guide for planning and developing future Forest Service budget proposals. However, actual Program implementation is limited by annual appropriations which may or may not fully implement Forest plans.

Locally developed plans keyed to land and resource capabilities play a key role in determining the Forest Service's capability to respond to national demands identified in the Assessment. In developing the 1980 RPA Assessment and Program, each Region analyzed its capability based on existing plans and other information available at the time (1977). Using these plans, each Region developed alternative proposals which were analyzed at the national level to arrive at the 1980 RPA Recommended Program.

2. REGIONAL PLANNING

A primary purpose of regional planning is to help link the RPA Assessment and Program with local planning (Forest and States). By being in the middle of the planning process, regional planning serves a dual role and is done in two separate stages:

Stage 1: The first stage is related to the development of the National RPA Assessment and Program. It involves an analysis of local plans and other available information on regional capability. Using this information, regional line officers provide input into the National RPA process. They also participate as a member of the Forest Service decisionmaking group in developing the National RPA Assessment and Program and ultimately negotiate with the Chief of the Forest Service for the regional share of the National Program.

Stage 2: Once the National RPA Recommended Program is finalized, the Chief distributes to each regional unit their share of the National Program in terms of output targets and associated costs. At this point, the second stage of regional planning begins with the development of a Regional Plan which does three things:

a. Displays the regional RPA Program along with its distribution among the Forests a description of State and Private Forestry and Research programs. The RPA output targets represent each unit's share of the national 1980 RPA Program based on existing plans and other available information used to develop the RPA Program and subsequent budget proposals.

b. Provides planning direction for developing Forest Plans, including the alternatives to be considered. Planning direction may also result from the resolution of certain regional issues relevant to land management decisions. A test of relevancy is whether the Forests need the issue resolved at the regional level to guide their planning.

c. Develop the standards and guidelines for the management of the National Forests as required by Section 6 of the National Forest Management Act of 1976 and subsequent implementing Regulations.

This Regional Plan is the means used to communicate national and regional direction for Forest planning and pertinent information needed for State and research planning. It must be viewed as a document prepared at this particular time after Stage 1 has been completed and is primarily based on the 1980 RPA data.

The Regional Plan will be subject to change as new and better data on biological capabilities and social, economic, and environmental effects become available through the Forest and State planning process.

3. LOCAL PLANS

By collecting and integrating basic data on biological potential, resource inventories, and research problems, local plans become the basic building blocks for regional and national planning. The Forest and State plans now being developed will play an important role in shaping the next RPA Assessment (1989) and Program (1985).

Forest Plans will include a reasonable range of alternatives, both above and below the 1980 RPA Program. One or more alternatives will be designed to meet the Forest's share of the 1980 RPA Program. Other alternatives will address the long term goals established by Congress in the revised Statement of Policy and specific issues on the Forests. The Regional Forester's decisions on individual Forest Plans are not constrained by the RPA Program since it was primarily based on Plans existing in 1977. Rather, the emphasis in Forest planning will be on the future and how the Forest can best be used and managed to meet people's needs.

a. Tongass Land Management Plan (TLMP)

The Tongass Land Management Plan was implemented in April 1979 on the three areas of the Tongass National Forest. The Forest Service recognized that subsequent publication of the National Forest Management Act Regulations might raise the need to modify the plan. TLMP scheduled this action for 1983.

In December 1980 the Alaska National Interest Lands Conservation Act was passed. The legislative record shows TLMP and its associated data and environmental impact statement were used extensively in preparation of portions of that legislation. The Act validated many decisions made in TLMP and legislated some items that need to be incorporated into the Plan. In addition, the Act directed several studies be made to keep Congress informed about the status of the Forest in regard to timber supply and demand, opportunities to increase timber yields on National Forest land, impacts of wilderness designations, measures instituted to protect fish and wildlife, and the status of small business timber sale set-aside programs.

Under these circumstances, TLMP will be amended as soon as possible to reflect the decisions made by Congress in passing the Alaska Lands Act. Revision of TLMP to meet NFMA requirements will be completed by 1985. This schedule will permit us to improve the data base and respond to Congressional reaction to the special reports required by the Alaska Lands Act.

b. Chugach Land Management Plan (CLMP)

The Chugach Land Management Plan preparation is in progress. It will be directed by this Regional Plan and will incorporate the Alaska Lands Act mandates. It will also resolve the further planning areas from the RARE II study and NFMA.

c. State Forest Resource Plan and Program

The Alaska State Forester is in the process of developing the State Forest Resource Plan and Program. It will focus on all forested lands in the State using data and policies developed through the Resources Planning Act, the Cooperative Forestry Assistance Act, and State agencies.

C. Program Development and Budgeting

The RPA Program, Regional Plans, and local plans set direction on what should be done in terms of objectives, output targets, standards and guidelines. They also include an estimated cost to implement plans based on the best information available. However, the rate of implementation is dependent upon the amount of resources (funding and workforce) made available to the Forest Service through the annual Federal budgeting and appropriation processes.

The Program Development and Budgeting process provides an opportunity to reflect current conditions and changes that may have occurred since the RPA Program was developed. Several budget levels, all based on the RPA Program, are prepared for Regions, Research Stations, and State and Private Forestry areas. Budget proposals which depart from the Recommended RPA Program are explained and justified.

Budget proposals represent firm commitments by these units to achieve a certain level of output targets at a specified cost. Therefore, cost estimates are updated annually to reflect current conditions and the details of a specific set of project proposals (e.g., timber sales and associated road costs).

Although RPA targets and Forest Service plans serve as the basis for the initial budget proposals, they are frequently adjusted to reflect current conditions and the Administration and Congressional priorities as expressed through the appropriation process. Once Congress passes the Appropriation Act, the budget becomes a firm contract on work for which the Forest Service is held accountable. Normally, these adjustments made during the budgeting process are within the scope of Regional and Forest Plans.

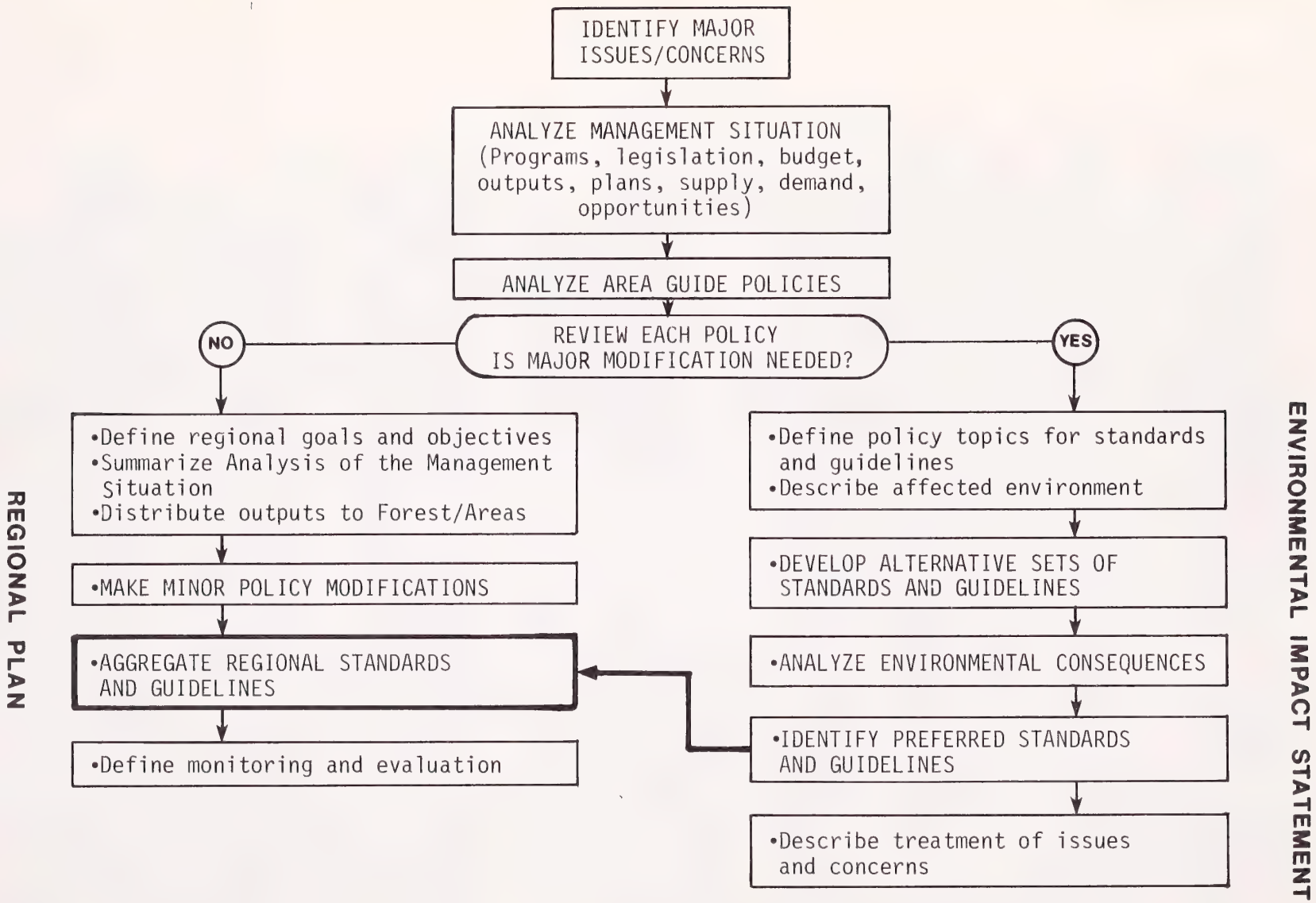


Figure 1 - The role of the Southeast Alaska Area Guide in the development of the draft Regional Plan and Draft Environmental Impact Statement

Fiscal Year 1981 was the first year of the 1980 RPA Five Year Program. The distribution of Fiscal Year 1981 funds was based upon existing resources and land management plans, the best cost opportunities, local demands, local conditions, historical trends, and future outputs expected. The Fiscal Year 1982 Program will be distributed in the same way, however, new information (demand or supply problems) may modify local programs. By Fiscal Year 1983, we expect Forest Plans will play an important role in program and funding distribution.

It is important to understand that the implementation of Forest Service plans will reflect the realities of the annual Federal budgeting and appropriation process.

D. Planning Process Dynamics

Finally, it is important to remember that planning is a continuous process. Judgments are made on the basis of the best information available at the time plans are made. To keep the planning process viable and responsive, plans will be adjusted over time to reflect new and better data or changes in assumptions and people's needs.

E. Alaska Regional Planning Process

Two items were of paramount importance in preparing the Alaska Regional Plan: (1) issues raised by the public, and (2) the Southeast Alaska Area Guide (1977). The process used to prepare the Alaska Regional Plan and Environmental Impact Statement is outlined in Figure 1.

As depicted in Figure 1, the identification of public issues and management concerns was the driving force behind the planning process. Public issues are subjects or questions of widespread public interest relating to Forest Service management identified by the public. Management concerns are issues or problems requiring resolution or that constrain management practices. They are identified by Forest Service managers. Once identified, public issues and management concerns are treated the same.

Issue Identification

The Regional Plan Interdisciplinary Team (IDT) prepared a list of issues from review of 11 previous planning documents and discussions with agency representatives from the State of Alaska. These issues were refined to a list of seven major questions. A list of management concerns was also prepared from the input of Forest Service staff and management.

The list of issues and concerns was put out for public review and comment in a planning newsletter in February of 1980. Public comments were reviewed and analyzed. There was a scarcity of responses from representatives of other Federal agencies and Native corporations so contacts were made in May and June of 1980 to solicit input for the Regional Plan. Because regional planning questions were clouded by an overriding public concern about the Alaska Lands Bill then before Congress,

and the impending expiration of the withdrawals under the Federal Land Policy and Management Act, the regional planning process was suspended in June of 1980.

The process was reactivated immediately after passage of the Alaska Lands Act in December of 1980. The IDT met to reconsider the issues and management concerns. The public had commented on the inadequacy of the original seven planning questions identified through responses to the February newsletter, and had provided other issues and concerns, many of which were detailed or specific statements falling under one of the original seven headings.

A list of issues and concerns was developed from the Southeast Alaska Area Guide, summary of public comments on the February newsletter, summary of the May/June 1980 external coordination efforts, and more recent correspondence and contacts with the public, representatives of the State of Alaska and other Federal agencies. The issues were evaluated against the following criteria to determine which issues/concerns would be used to guide preparation of the regional plan:

1. The issue affects or is affected by Forest Service activities; or the issue cannot be readily resolved without Forest Service involvement;

2. The issue is regional in scope and cannot be resolved in either a Forest plan or at the national level through the RPA process; and the issue can be at least partially resolved within the existing authority of the Regional Forester.

3. The issue involves significant resource conflicts; major economical, social, or environmental implications; or there is a high level of public interest in the issue.

The following issues and management concern were identified from the review and analysis:

Public Issues:

- Possible Adverse Impacts to Fisheries from Timber Harvest

- Conflicts Between the Harvest of Old Growth Timber and Wildlife Habitat

- Designation and Management of Wilderness

- Concern About How Much Timber Production Can be Sustained on National Forest Lands

- Concern About Economic Development and Social Stability

- Development of Energy and Mineral Resources

- Changes in Recreation Opportunities and Visual Resources

- Transportation Connections Between Communities and Management of Potential Transportation Corridors

Management Concern:

- Need to Revise the Southeast Alaska Area Guide Policies to Conform to New Legislation, Permit More Uniform Application on the Ground and to Respond to Public Issues.

A systematic process was used in determining how each issue would be treated. Figure 1 is helpful in describing this process. Note that the Southeast Alaska Area Guide forms the foundation for the Regional Plan standards and guidelines. The policies in the Guide were analyzed for their adequacy and the extent to which a modification or new policy would contribute to issue resolution.

If the intent of the policy was correct, but minor clarification or elaboration was needed, then the modification was made without detailed analysis in the Environmental Impact Statement. Those policies that needed major modification have been analyzed in detail in the Environmental Impact Statement.

In the summary of the issues below, we have indicated the disposition of each issue and the role it plays in the Regional Planning process.

Issue: Possible Adverse Impacts to Fisheries from Timber Harvest

There is public concern about possible adverse impacts to anadrmous fisheries from timber harvest operations.

Some of these impacts can be water quality (sedimentation) changes, stream temperature changes, and in-stream debris. Adverse impacts can be minimized through proper road, harvest unit, and facility design and location, and through implementation of existing policies, standards and guidelines.

Policies in the Regional Plan under the Fish, Timber, Soil and Water elements provide protection for anadromous fish habitat. Many policies in the Southeast Alaska Area Guide which are prescriptive have been referred to Forest planning. Analysis led to the conclusion that no major changes in regional-level management direction are necessary. Standards and guidelines in the National Forest Management Act and the Alaska Lands Act also provide for habitat protection.

Issue: Conflicts Between the Harvest of Old Growth Timber and Wildlife Habitat

The public has expressed concern that harvesting old growth forest will have a serious adverse impact on some species of wildlife, especially Sitka black-tailed deer. Cutting old growth forest stands under a 100-125 year rotation harvest schedule is necessary to meet the 4.5 billion board feet harvest per decade required by the Alaska Lands Act.

The Alaska Department of Fish and Game has stated that harvesting old growth forests by clear-cutting causes a permanent loss of habitat for some species of wildlife such as black-tailed deer, mountain goat, Vancouver Canada goose and bear. Under the current 100-125 year rotation schedule, the Department states that old growth forest habitat is an irretrievable resource and will cause a permanent reduction in those species dependent on this habitat. The Department has requested that future harvest of old growth stands supporting 50 thousand board feet per acre be halted and retained for wildlife purposes. The State Boards of Game and Fish have supported this request in a joint resolution adopted in December, 1980 (Appendix E).

Research conducted jointly by the Department of Fish and Game and the Forest Service Forestry Sciences Laboratory (on Admiralty and Chichagof Islands) describes the relationship of Sitka black-tailed deer to old growth forest and dependence on this habitat during the winter. The large crowns and heavy limbs of the trees in the old growth forest act as snow interceptors during heavy winter snowfalls and prevent accumulations of deep snow cover on the forest floor. This allows the deer easy access to understory food plants and conserves energy during the critical winter period.

Information from the Queen Charlotte Islands in British Columbia, Canada, and from other islands in Southeast Alaska -- Sokolof, Kiesnoi, and Level Islands -- indicates that the dependency on old growth forests may be lessened somewhat where the maritime climate predominates. Also, the influence of timber harvesting on predator prey relationships has not been detrimental insofar as deer (prey for wolves, primarily, and to a lesser extent both black and brown bear) are concerned.

Resolution of this issue is not within the scope of the Regional Plan. The Forest Service is fully committed to working with the Department of Fish and Game in trying to resolve the issue and will join with the Department in analyzing the consequences of deferring harvest of high volume old growth timber and other areas of high wildlife value to allow time for gathering additional information.

(See Appendices E, F, and G of the Draft Regional Plan for official statements.)

Issue: Designation and Management of Wilderness

There is a public concern about the amount of wilderness to be designated in Alaska and how wilderness areas should be managed.

The Alaska Lands Act established National Forest Wilderness in the Tongass National Forest. Section 706(b) of the Act requires the Forest Service to review and report to Congress every two years on the status of the Tongass National Forest. The impact of wilderness designations on the timber, fishing and tourism industry in Southeast Alaska is to be included in the reports to Congress.

Wilderness studies are being conducted on approximately five million acres of the Chugach National Forest as part of the Forest land management planning process.

Management policies in the Regional Plan reflect the Forest Service policy changes necessary to comply with the Alaska Lands Act and the Wilderness Act of 1964 (as amended by the Alaska Lands Act). Further management guidelines will be prepared as needed as part of Forest Land Management Plans.

Issue: Concern About How Much Timber Production Can Be Sustained On National Forest Lands

The broad issue of timber supply centers on three interrelated public concerns including the role of: (1) newly acquired State and Native lands in meeting wood supply versus supply demands from National Forest lands; (2) non-declining even flow timber yield versus departure from that standard; (3) wood fiber export versus local processing (involves balance of payments).

Existing legislation, including the Alaska Lands Act and the National Forest Management Act, has resolved (1) and (2). The timber supply from Tongass National Forest lands is mandated by the Alaska Lands Act. (Additional volume could come from State or Native lands.) Departure from non-declining flow may be considered at the Forest Planing level (36 CFR 219.12). The concern mentioned in (3) is also considered beyond the scope of this plan as existing and historic policy has been to restrict large scale export of most species. Any change in policy would be a separate decision involving public input in the decision making process. This issue is not addressed in the EIS.

Issue: Concern About Economic Development and Social Stability

Public concern was expressed about the support Forest Service programs provide to local employment and social stability. There was concern for balance of local needs against national and regional demands for commodity and amenity-related programs.

Area Guide policies as revised in the Regional Plan address this concern. The Alaska Lands Act also provides direction.

Issue: Development of Energy and Mineral Resources

There is public concern about the need for development of energy and mineral resources in Alaska, and potential adverse environmental impacts.

Regional Plan policies from the Southeast Alaska Area Guide provide for mineral exploration and development with environmental safeguards. The Alaska Lands Act mandated mineral exploration and development.

The public scoping process showed the withdrawals under the Federal Land Policy and Management Act as the primary concern under energy and minerals. The Alaska Lands Act resolved this issue. Analysis led to the conclusion that with the withdrawal question resolved, existing policy was sufficient to address this issue at a regional level.

Issue: Changes in Recreation Opportunities and Visual Resources

There is public concern about changing recreational opportunities and visual resources in areas primarily outside of wilderness (see Analysis of the Management Situation).

Alternative standards and guidelines developed for the ten policy topics in the EIS (see EIS Chapter IV) were evaluated for their ability to alleviate impacts of development on recreational opportunities and visual resources. Forest plans and project plans will provide detailed direction for implementation of the policies in the Regional Plan.

Issue: Transportation Connections Between Communities and Management of Potential Transportation Corridors

Two issues of transportation seem to be very active in people's minds: 1) transportation connections between communities; and 2) the land management policies of National Forest lands along potential transportation corridors.

The Forest Service, in the course of developing a transportation system to support land management plans, has the ability to help facilitate community connections in many situations, particularly between the smaller communities of Southeast Alaska. The State of Alaska and communities involved have a strong interest in these connections particularly from a community-development and road-operation/maintenance point of view.

Transportation corridors usually involve construction of roads and utility lines along major rivers or the inland waters. Those corridors, with high fisheries, wildlife, estuarine, and other values pose conflicts with the construction and usage of major transportation systems. Alternative standards and guidelines were proposed to address this issue and are analyzed in the EIS.

Management Concern: Update of Southeast Alaska Area Guide.

The Southeast Alaska Area Guide, which has served as a de facto Regional Plan since 1977, needs revision to reflect new legislation, to permit more uniform application on the ground, and to respond to public issues.

Public comments received during 1980 public participation activities for the Regional Plan identified implementation and monitoring as an issue. The concern also surfaced in contacts made with other Federal agencies, State agencies and Native corporations. In essence, reviewers said that the Forest Service develops good plans and policies but these appear to get lost in the implementation process.

The policies in the Southeast Alaska Area Guide have served as the foundation for the Regional Plan standards and guidelines. Alternatives were proposed and evaluated for the standards and guidelines required by the National Forest Management Act Regulations. Minor changes were made in Area Guide policies in the Regional Plan. Major changes are proposed through the environmental statement process for the following ten standards and guidelines:

Appropriate Systems of Silviculture

Maximum Size of Created Openings

Dispersal and Size Variation of Tree Openings Created by Even-Aged Management

State of Vegetation That Will Be Reached Before a Cutover Area is No Longer an Opening

Biological Growth Potential for Determining Capability of Land for Timber Production

Management Intensity

Utilization Standards

Unit of Measure for Expressing Mean Annual Increment

Transportation and Utility Corridors

Air Quality.

In summary, eight issues and one management concern were identified to guide preparation of the Regional Plan. When evaluated against existing policies from the Southeast Area Guide and the Alaska Lands Act, three areas of concern required major policy changes to resolve:

1. Transportation connecting between communities and management of potential transportation corridors

2. Need to revise the Southeast Alaska Area Guide to conform to National Forest Management Act requirements

3. Conflict between harvest of old growth timber and wildlife habitat.

Alternative policies were developed and analyzed in the EIS to address the first two issues. The Forest Service will work with the Alaska Department of Fish and Game to resolve the old growth timber issue. A positive course of action is outlined, but issue resolution will take place outside the Regional Plan/EIS process.

CHAPTER II - SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

Overview

For administrative purposes, the State Government has divided Alaska into five planning areas. In future Regional planning documents, the Forest Service will adhere to these designations. Region 10 is described within the context of three general areas:

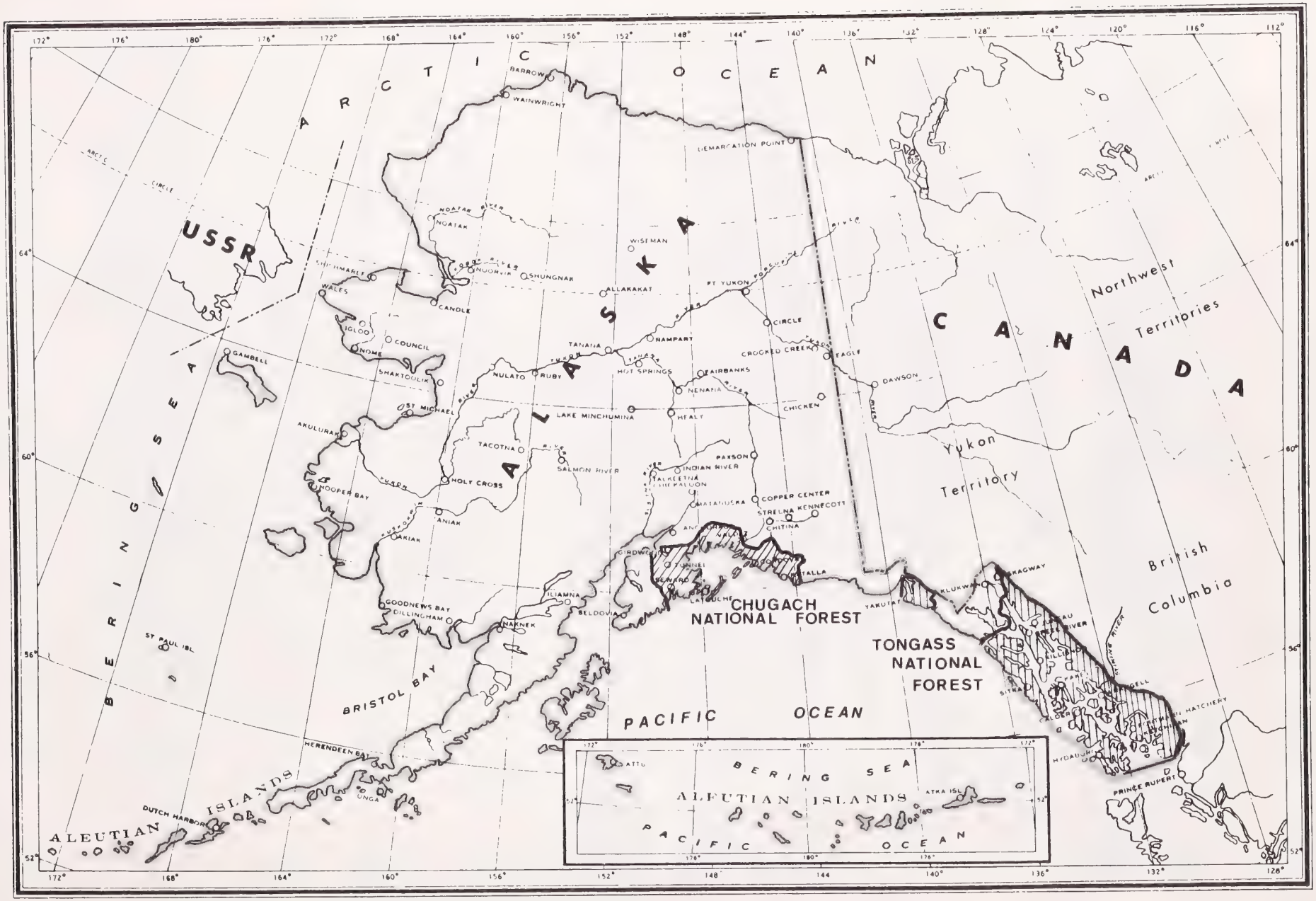
Southeast - the entire Alaska panhandle, from Dixon Entrance to Icy Cape, which includes all of the Tongass National Forest (16,954,713 acres).

Southcentral - that area which begins at Icy Cape, and extends to the Alaska Range along the southwestern coast and out the Aleutian Chain. Within this area lies the Chugach National Forest (5,940,040 acres).

Interior - that area which is north of the Alaska Range.

The Interior of Alaska has no National Forests. The resources of the Interior, however, will play an important role in the future of the State. The area is not only a major source of coal, oil, timber, natural gas, and minerals, but also provides unique recreational experiences. The State and Private Forestry branch of the Forest Service is involved in identifying opportunities for assistance programs in this area. These programs are described in the final section of this chapter.

The resources of Region 10, as well as administrative and support programs have been organized into a series of elements, each of which describes important aspects of Forest Service activities with respect to soil, water, fish, wildlife, timber, and so on. These elements follow.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USSR
ALASKA
CANADA
Northwest Territories
Yukon Territory
British Columbia
BERING SEA
BRISTOL BAY
PACIFIC OCEAN
ALEUTIAN ISLANDS
CHUGACH NATIONAL FOREST
TONGASS NATIONAL FOREST
BARROW
WAINWRIGHT
LIEMARCATION POINT
NOATAK
WISEMAN
SHUNGNAK
NUOVIK
SHISHMAREF
WALES
CANOLE
IGLOO
COUNCIL
NOME
GAMBELL
SHAKTOOLIK
ST MICHAEL
AKULURAK
HOOPER BAY
HOLY CROSS
ANIAK
AKIAK
ALLAKAKAT
PT YUKON
CIRCLE
RAMPART
TANANA
HOT SPRINGS
CROOKED CREEK
EAGLE
FAIRBANKS
NULATO
RUBY
NENANA
DAWSON
CHICKEN
LAKE MINCHUMINA
HEALY
TACOTNA
SALMON RIVER
PAXSON
INDIAN RIVER
TALKEETNA
HURRICANE
MATANUSKA
COPPER CENTER
STRELNA
KENNECOTT
CHITINA
GIRDWOOD
TUNNEL
SEWARD
TALLA
YAKUTAT
KLUKWAN
SKAGWAY
ILIAMNA
BELDOVIA
NAKNEK
GOODNEWS BAY
DILLINGHAM
ST PAUL ISL
HERENDEEN BAY
UNGA
DUTCH HARBOR
ATTU
ATKA ISL
PRINCE RUPERT

HUMAN AND COMMUNITY DEVELOPMENT

Introduction

Forest Service program outputs are significant in maintaining the natural resource economic base within communities as well as providing subsistence uses, leisure time opportunities, and facilitating Alaskan lifestyles. Often, however, these considerations are in conflict between affected user groups at the local and National level. Also, Alaskan needs must be balanced against National resource demands and international considerations such as the balance of trade.

In addition to resource-oriented programs, the Forest Service provides other programs which directly contribute to community well-being such as cooperative fire protection, young adult and senior citizen employment, and environmental education.

Situation Statement

Forest Service planning policy is to evaluate the range of forest uses for which the public has expressed an interest. Where resource management issues and concerns exist, an analysis of the current management situation is required to determine how well these issues and concerns can be resolved. This includes testing the feasibility of existing resource management goals and the need for new direction. To accomplish this, consideration of population growth, age distribution, economic growth and diversity, personal income and employment are important.

The Alaska Department of Labor has estimated that Alaska's total population in 1980 was 400,331. This represents a 37 percent increase over the 1970 population. Although this is one of the fastest growth rates of any of State, Alaska still has the smallest population density, slightly more than one person per two square miles.

Reliable information on the age structure, sex profiles, and racial composition of Alaska's population is difficult to obtain. The most recent information is derived from the preliminary results of the 1980 census, available from the Alaska Department of Labor, Alaska 1980 Population, A Preliminary Look.

Information for 1979 indicates that Alaska's age/sex composition is similar to the general United States profile, but the median age is younger (23 in Alaska, 28 in the United States), and the male population predominates (54 percent).

Native populations (Indian, Eskimos, and Aleuts) constitute approximately 17 percent of Alaska's total population. The Tlingit, Haida, and Tsimpshian tribal groups inhabit Southeast Alaska. Athabascan Indians live primarily in the Interior and Eskimos inhabit the mainland coast from the Bering Sea to Prince William Sound in Southcentral Alaska. Aleuts generally live on the westernmost third of the Alaskan Peninsula and on islands in or near the Aleutian Chain.

Alaska's population and economic growth has increased substantially since 1970, relative to the rest of the Nation. High growth rates are attributable to net migration of younger-age workers and their families (approximately 72 percent), and also to natural population increases. It should be noted that two-thirds of Alaska's population live in Southcentral Alaska, and fifty percent of that population is concentrated in Anchorage, Alaska's largest city.

Economic growth is another important consideration and can be measured by changes in gross product. This measure is the total value of the final sale of goods and services.

Employment is a measure of economic well-being and affects resource demands. An increase in employment related to natural resources and/or the export of manufactured products and services (basic employment) stimulates additional employment in support services industries (non-basic employment). Basic and non-basic employment as well as total employment in Southcentral and Southeast Alaska is expected to increase through 1990. It should be noted that government is presently the leading employer, accounting for approximately 34 percent of the State's total employment.

In 1980, employment related to renewable resources development was six percent; employment related to nonrenewable resources was four percent. Projected renewable and nonrenewable employment for the year 1990 is three to four percent and four to five percent, respectively. The remaining employment includes government, trade, construction, transportation, communications, public utilities services, some manufacturing, etc. Tourism shows greatest potential, followed by the timber and fishing industries.

Lifestyles

People's lifestyles reflect the way they meet their physiological and psychological needs. Perhaps nowhere else in the National Forest System do management policies and practices affect a region and its communities to the extent that they do on the Tongass and Chugach National Forests. If a community is defined as a discrete human settlement, then Forest Service management will have considerable effect on lifestyle preferences of residents using Alaska's National Forests. The Alaskan lifestyle is defined by a number of characteristics, including the specific economic base of a community, such as fishing, logging, or mining. Lifestyles are often characterized by remote living conditions relative to the lower 48, a reliance on natural resources for subsistence, and a strong orientation to the out-of-doors for both employment and recreation.

The land and sea are the chief sources of recreation opportunities. Many residents, and communities organize annual activities around outdoor recreation opportunities such as salmon derbies and fall hunts. Fishing, hunting, hiking, mountain climbing, boating, skiing, camping, photography, and other outdoor pursuits take up the leisure hours of Alaskan residents.

Most important, the land is a source of livelihood for Alaskans, both Native and non-Native. Except in Anchorage, Fairbanks and Juneau, where government and support-services employment is the economic mainstay, most communities depend upon the timber industry, mining, commercial fishing, subsistence, or tourism. Dependency on land is an economic fact of life in Alaska.

In some outlying villages, residents still depend upon hunting and fishing as essential food sources. Subsistence activities typically supplement cash incomes. The subsistence lifestyles are valued as a cultural and traditional practice. Thus protection of subsistence rights helps to preserve the historical and cultural character of Alaska. In 1978, concern over lifestyle preferences emerged in the Alaska Public Forum. An overwhelming number of Forum participants (72 percent) agreed that subsistence should have priority over commercial and recreational uses of the State's fish and wildlife. On the basis of the Alaska Public Forum results, the Alaska Growth Policy Council recommended that the State take the primary role in establishing policy and criteria for subsistence use.

Assumptions

1. Population will continue to increase at rates greater than the national average. The most rapid growth will occur in Southcentral Alaska.

2. Total income will increase, creating larger income gaps between social classes and geographic areas.

3. Alaskans will seek a higher quality of life, demand greater environmental protection, and demand more forest-based commodity goods and services.

4. Prices will continue to rise, especially those related to energy. Consequently, resource use and processing costs will also increase.

5. In response to rising costs, improved processing technology will be introduced.

6. Relative to the rest of the State, Southcentral Alaska will experience the greatest economic growth rate, including industrial diversification and real income growth.

SOIL, AIR AND WATER

Introduction

Good soil, air and water resources underlie the productivity and quality of all other forest resources. Tree growth, fish and wildlife habitat, agricultural potential, and recreation opportunities are intimately associated with quality soil, air and water.

Situation Statement

Soil

Mineral soils in Southeast and Southcentral Alaska have developed on recently glaciated landscapes and from transported or in-place glacial materials. Organic soils have also formed on these landscapes where drainage is poor and the humification of plant residues, mainly sedges and mosses, has occurred.

At present, forest and associated plants are the most productive use of mineral soils. Mining of peat for fuel and garden use is insignificant at present, but is being studied by State agencies.

Air

The air quality of Alaska is generally in a pristine state. Seasonal degradation as a result of smoke emissions from wild and prescriptive burnings occur in the Interior and Southcentral portions of the State. The generally wet, rainbelt conditions of Southeast Alaska have precluded the occurence of natural fire except on a very infrequent basis.

Smoke management is an important part of planning for prescriptive use of fire. Use of fire is commonly planned as a part of the wildlife habitat enhancement activities in Southcentral Alaska. Smoke management will continue to be an important part of the planning and operation of prescriptive burning. Coordination with the Alaska Department of Environmental Conservation is necessary to assure that air quality is not degraded. Local sources of emissions must be evaluated to assure that airshed integrity is maintained.

Water

Precipitation is high, averaging over 100 inches in the coastal areas, and 40-60 inches on the Kenai Pennisula, with over 300 inches annually at high elevations. Consequently, runoff is high, averaging about 95 inches. Due to steep topography, shallow soils, impermeable rocks, and small drainage areas, natural water storage, including groundwater, is very low. Artificial impoundments are frequently used to supply large volumes of water for a wide variety of uses, including hydroelectric, domestic, mining, and seafood and fiber production. Periodic shortages of domestic water plague several communities in the area.

Surface water quality throughout the area is exceptionally high, except in glacial streams, where seasonal sediment concentrations may exceed 2,000 milligrams per liter. High water quality provides suitable fish spawning habitat and fingerling rearing areas.

Integrated Soil, Air and Water Programs

Major activities in the soils and water program include inventory, quality monitoring, improvements and restoration, and management services. Most activities are included in the following program areas:

INVENTORY -- Inventory maps and data are available for about 25 percent of the National Forest acreage and include "standard" soil surveys, Soil and Associated Ecosystem inventories and Landsystem inventories. Water inventories are completed for about five percent of Federal lands in Southeast and Southcentral Alaska.

MONITORING -- A program to monitor the effects of management activities needs to be strengthened. This program has a priority role in determining compliance with State of Alaska Water Quality Standards, measuring and interpreting changes in water quality and quantity, and measuring and interpreting changes in land productivity.

MANAGEMENT SERVICES -- The goal of Watershed Management Services is to assure the protection and maintenance of watershed conditions during management activities. This is accomplished by supplying soil and water data and interpretations, and by on-the-ground evaluation and recommendations for ongoing forest activites.

IMPROVEMENTS -- The goal of the improvement program is to restore and maintain waters and soils that have been degraded by management or natural causes. Improvement measures consist of revegetation and construction of soil-stablilization structures.

Assumptions

The following assumptions relate soil and water resources to future supply and demand. An analysis of resource capability is made for each assumption in order to address management concerns for both current programs and anticipated uses.

1. Economic growth and increased energy needs will bring about greater demands for hydroelectric power. Both Southeast and Southcentral Alaska have considerable potential for hydroelectric power generation which may enable them to meet a part of their energy needs. At present two hydroelectric plants, Tyee Lake and Swan Lake, are being developed in Southeast Alaska and there are proposals for major hydroelectric plants in the Interior. Hydrologists and soil scientists have been and will continue to provide base data for the projects in Southeast Alaska.

2. Watershed-related legislation, regulations and manual direction will assure that appropriate management practices are closely followed on riparian and aquatic ecosystems, wetlands, and floodplains. While many of these areas are biologically productive, they are also extremely sensitive to management actions such as road construction and timber harvest.

3. Public demand for soil and water protection and maintenance of soil fertility will increase. A watershed improvement program will require continued development on each Forest. Forests will also need to improve methods for predicting soil mass movement and erosion.

4. Community growth and development will require that resource managers supply high quality water for domestic consumption, food processing, outdoor recreation, and industrial needs. This assumption requires that watershed specialists supply soil and water data for municipal watersheds, monitor management actions to insure that water quality standards are met, and provide water inventory data for such uses.

5. Soil and water quality monitoring and research will suggest new methods for erosion and sediment control. In addition, this research will provide data for assessment of natural water quality and quantity fluctuations, and the effects of short-term changes in water quality and streamflow on fish habitat.

6. A cooperative program between Research and the National Forests is presently investigating factors that influence soil and water movement. This investigation includes the study of soil parent materials and their response to timber harvest and road construction and requires continued development.

7. Aquaculture water use is expected to increase to 150 million gallons per day in Southeast and Southcentral Alaska. Pulp mill and other industrial uses such as mining will remain at about 100 million gallons per day, while domestic use is expected to increase to about 50 million gallons per day. These data are estimated based on information contained in "Alaska Regional Profiles for Southeastern and Southcentral Regions" and in "Resources for Alaska." Hydroelectric power potential in Southeast Alaska is particularly high.

8. Air quality is expected to remain high. However, proposals for burning and industrial development (i.e., mining, pulp mills, etc.) will require analysis prior to implementation, and existing industrial mills will require monitoring.

FISH

Introduction

In early days of the Alaskan commercial salmon fishery, most salmon were used for subsistence; supply exceeded demand. With the development of canning processes, in about 1860, this situation changed and by 1900, the salmon fishery was a rapidly growing, highly competitive industry. The commercial harvest steadily increased until the period 1930-1940, when all-time peaks of 100 million fish were reached. Since then, annual harvest levels decreased to a low of about 40 million fish in the early 1960's and then increased to an average of 52 million during the next ten years. Salmon catches for the years 1970-1978 follow:

Year	State-wide Catch (Millions)	Tongass	Chugach	Alaska Region
1970	68.5	14.5	3.3	17.8
1971	47.5	12.8	8.1	20.9
1972	32.0	17.8	.3	18.1
1973	22.3	10.1	3.0	13.1
1974	21.8	8.5	.7	9.2
1975	26.2	5.4	4.8	10.2
1976	44.4	7.8	3.6	11.4
1977	50.8	16.6	6.6	23.2
1978	82.3	24.6	3.8	28.4

The dockside value of commercial landings from stocks produced on the National Forests of Alaska averaged $42 million for the period 1970-1978. The dockside value in 1978 was $75.54 million.

Exports of salmon harvested in Alaska averaged $99.3 million during the period 1970-1978. Exports of salmon produced on National Forest lands in Alaska averaged $38.7 million during this same period.

National Forest lands in Southeast and Southcentral Alaska are capable of producing more anadromous fish than the present supply. From 1930 to the early 1940's there were years during which 40 to 60 million pink salmon were caught in saltwater adjacent to the Tongass National Forest. Although such high yields may not be sustainable indefinitely, they do indicate the capacity of the streams to produce large numbers of fish.

Salmon stocks in Southeast and Southcentral Alaska can be increased considerably by regulatory and management policies, and by accelerated habitat enhancement programs. The Forest Service is primarily concerned with enhancement and protection of habitat -- fishways, stream clearance, spawning channels, lake stocking and fertilization, all in close cooperation with the State Department of Fish and Game and with private sector hatcheries. These programs will also add to the number of salmon that can be harvested.

With a growing world population and consequent need for high protein food, demand for salmon will increase. The long-term objective of the State Department of Fish and Game is to provide a State-wide annual harvest of over 115 million salmon. To achieve this objective it is necessary to:

manage fisheries to obtain maximum production from wild stocks of salmon;

maintain productivity through protection of existing habitat;

engage in intensive enhancement and rehabilitation programs;

supplement wild stocks with production from hatcheries.

During the past three decades, a significant sport fishery has developed in Southeast and Southcentral Alaska as well as in the rest of the State. Since statehood, sport fishing license sales have increased at the rate of 7.4 percent per year. The National Forests contribute all species of salmon, cutthroat, steelhead, and rainbow and Dolly Varden trout to the sport fishery. Southeast Alaska contains about 120,000 acres of fish-bearing lakes and 23,000 miles of streams. The Chugach National Forest portion of Southcentral Alaska contains about 70,000 acres of lakes and 8,000 miles of streams.

A quality sport fishery depends upon the presence of a variety of salmonid fishes. In addition to salmon, several other species, including Arctic grayling, lake trout, Arctic char, rainbow, cutthroat, Dolly Varden, and eulachon are eagerly sought by sportsmen. Heavy fishing pressure occurs in the most accessible areas, and local stocks are often depleted. Periodic plantings are required in order to meet angler needs. In the Region, in 1979, sport fishing accounted for about 200,000 Recreation Visitor Days and was valued at $7 million.

Maintenance of productive habitat for sport fish can be achieved through implementation of existing standards.

Situation Statement

The Alaska Department of Fish and Game (ADF&G) is responsible for fisheries management and regulations on National Forest lands. The Forest Service is responsible for the habitat. Therefore, planning and management programs of the Alaska Department of Fish and Game and of the Forest Service are closely coordinated. Consultation and coordination between the Forest Service, Alaska Department of Environmental Conservation, Department of Natural Resources, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service must also be maintained at the highest level.

Habitat protection measures insure proper stream temperatures, dissolved oxygen levels, adequate cover, minimal sedimentation and free passage for fish. Special emphasis is placed on identifying tributaries important as rearing habitat and carrying out protection and enhancement measures to insure that productive capacity of these tributaries is not impaired.

Existing program areas for fish include enhancement of the habitat, cooperation and coordination of activities with other resource-oriented agencies, Resources Planning Act supply and demand assessment, coordination with Forest Research, habitat inventory and survey, and planning.

Assumptions

1. Alaskan fisheries are vital to the State's economy and also contribute significantly to the national and international food supply.

2. Management and protection of natural stocks and habitat will remain the primary means of increasing or maintaining fish productivity.

3. Total worldwide demand for animal protein and seafood will continue to increase, and will stimulate the production and harvest of salmon in Alaska.

4. Sport fishing will increase in response to increased tourism, population growth, and increased interest in the sport.

5. Natural habitat quality and quantity will diminish because of community expansion and other permanent land use developments. Remaining habitat will have to support desired levels of fish production.

6. With respect to forest management, effects on productivity will be directly proportional to safeguards. If all available precautionary measures are implemented, no significant adverse effects will result.

7. Historical harvests imply that Southeast and Southcentral Alaska have the capacity to produce more sport and commercial salmonids than are now produced. Therefore, at least part of the demand for salmon, trout, and char can be satisfied by intensive management of wild stocks, supplemented by production from hatcheries, and by natural habitat enhancement and restoration.

WILDLIFE

Introduction

The rich and variable wildlife resource base in Alaska provides important subsistence, recreation, commercial, ecological and aesthetic values for the public to use and enjoy. Compared to other States, many wildlife species are abundant in Alaska including important recreational species such as brown bear, polar bear, Dall Sheep, moose, Sitka black-tailed deer, caribou and wolf. Large areas of wetlands and tide flats provide staging and breeding habitat for millions of waterfowl, marshbirds and shore birds. Commercially valuable furbearers such as wolverine, marten and beaver are important to Alaska's fur trade. The heavily-timbered beach-front zones between Prince William Sound and Ketchikan support more than 4,000 breeding pair of bald eagles, the largest population in North America. Marine mammals such as sea lions, harbor seals, walrus, sea otters, killer whales, and Dall porpoises frequent coastal and inland waters.

Many Alaskans cling tenaciously to the right to maintain a subsistence lifestyle that has persisted for generations. As a result, subsistence hunting is important throughout the State and there is concern that nonsubsistence hunting is taking too large a share of the subsistence resource. On the other hand, nonsubsistence hunters are concerned that their legal right to hunt could be in jeopardy.

Situation Statement

The primary goal of the wildlife habitat management program in the Alaska Region is to provide suitable habitat to sustain wildlife populations to meet legal mandates and public demand consistent with multiple resource management objectives. Management priorities in the Region are (1) endangered, threatened, and sensitive animals and plants, (2) species of subsistence, economic and recreational importance and (3) other desired Native or nonnative species.

The goal of the threatened and endangered species management program is to develop and initiate the actions required to improve the status of the species so Federal listing is no longer required. There are 14 species classified as endangered in Alaska. Of these, eight are marine species and not directly influenced by National Forest management programs. Five species of birds are also classified as endangered: short-tailed albatross, Aleutian Canada goose, Eskimo curlew, American peregrine falcon and the Arctic peregrine falcon. At this time, there is no evidence that any of these species are dependent on National Forest lands for any part of their life cycle or that any resource management activities on the National Forests has any effect on these species. The occurence of any endangered or threatened species is considered for all planned programs on National Forest lands in the Alaska Region. The Forest Service will work closely with the U.S. Fish and Wildlife Service to insure protective measures are implemented in the event endangered or threatened animals and plants are found on National Forest lands.

The existing Regional Programs for the Tongass and Chugach National Forests are similar. Management of wildlife habitat is closely coordinated with the Alaska Department of Fish and Game which has primary responsibility for management of wildlife and fish populations. The Forest Service program includes those activities necessary to protect, maintain, and enhance National Forest System wildlife habitats, to assist State and private land managers (including Native Village and Regional Corporations) through cooperative forestry programs, and to develop new knowledge through research on environmental requirements of wildlife.

The Alaska Department of Fish and Game and the Foreat Service are concerned about the impact harvest of old growth forest stands has on some species of wildlife, particularly Sitka black-tailed deer. Research jointly conducted by the Department of Fish and Game and the Forest Service on Admiralty and Chichagof Islands indicates that high volume old growth forest habitat is key for deer survival during the winter months. Information from the Queen Charlotte Islands in British Columbia, Canada, and from other islands in Southeast Alaska--Sokolof, Liesnoi, and Level Islands -- indicate that the dependency on old growth forests may be lessened somewhat where the maritime climate predominates. Also, the influence of timber harvesting on predator prey relationships has not been determined insofar as deer (prey for wolves, primarily, and to a lesser extent both black and brown bear) are concerned. Reduction of old growth forest stands by clearcutting will cause a reduction (extent undetermined) in Sitka black-tailed deer populations in Southeast Alaska. The Department of Fish and Game has requested that future harvest of high volume old growth stands, those supporting more than 50 thousand board feet of timber per acre, be deferred.

This request is one of the recommendations made to the Boards of Game in the Department of Fish and Game's report on Wildlife and Forest Practices in Southeast Alaska, November, 1980 (see Appendix F for the complete text of this report). The State Boards of Game and Fish have supported this report through a joint resolution #80-80-JB adopted December 7, 1980 (see Appendix D for the text of the joint resolution).

The Forest Service is working closely with the Department of Fish and Game to assess the impact of implementation of this recommendation. Harvesting the 4.5 billion board feet in the decade (as mandated in the Alaska Lands Act) in lower volume stands could have the impact of markedly increasing the acreage of areas harvested with different environmental impacts.Through joint assessment the agencies will deal with the concerns expressed by the Department and the Boards of Game and Fish. A joint analysis of the effects of deferring harvest of high volume timber stands for wildlife purposes will provide a basis for modifying and clarifying retention of commercial forest lands for wildlife (See Appendix G for a limited analysis and response to the Department of Fish and Game's report to the Boards of Game and Fish).

Southeast Alaska

National Forest lands in Southeast Alaska support 53 species of mammals, 269 species of birds, and 7 species of amphibians. The distribution and populations sizes of these various wildlife species will vary according to habitat availability, weather conditions, disease, predation, and for some of the popular game animals local hunting pressure.

Sitka black-tailed deer populations in parts of the Southeast Region are presently low. The most likely reasons appear to be habitat conditions and predation.

Moose are found in larger mainland river drainages and on the Yakutat forelands. A series of hard winters, predation, and heavy hunting pressure caused partially by improved road access may have combined to bring about a serious decline in the Yakutat moose population. Recent information from the Alaska Department of Fish and Game indicates the moose population is recovering.

Goat populations are also low throughout most of their range. The reason for this decline is not known; however, suspected causes are past harsh winters, parasites, and hunting pressure.

Brown bear populations, with local exceptions, have probably not varied significantly over the years. Bear/human conflicts are increasing, especially near developed areas.

Southeast Alaska annually hosts millions of migratory waterfowl and shorebirds enroute to and from northern Alaska and Canadian breeding grounds. Nearly the entire known population of Vancouver Canada geese breeds and remains in Southeast Alaska throughout the year. Winter waterfowl populations vary according to the severity of winters but probably average in excess of 500,000 annually (excluding seabirds). Waterfowl habitat conditions are generally good throughout the Region.

Approximately 4,000 breeding pairs of bald eagles inhabit Southeast Alaska, and account for 80 percent of Alaska's bald eagle population. Human activity along the coastline can result in disturbances to nesting and feeding areas and loss of nesting sites for this National resource.

Estimates of abundance of some of the most important animals in Southeast, follow (Annual Wildlife Report, Alaska Region 1976-1980):

Tongass National Forest

Alaska Brown Bear	4,700
Black Bear	7,700
Black-tailed Deer	142,000
Moose	2,100
Mountain Goat	5,600
Wolverine	500
Wolf	700

Wildlife Demand, mid-1970's and mid-1980's, Southeast Alaska, expressed in number of licenses or permits. (Source: USDA Forest Service; Resources Planning Act (RPA), 1978)

SOUTHEAST ALASKA

Species	Demand Mid 1970's	Demand Mid 1980's
Furbearers	800	1,000
Moose	600	900
Deer, Sitka	4,200	5,200
Mountain Goat	500	600
Waterfowl	3,000	3,700
Upland Game	8,000	10,000

Wildlife habitat improvement opportunities in Southeast Alaska need better definition. There may be good potential for improving habitat for moose and deer through timber harvest prescriptions and thinning of second-growth stands. Maintenance of habitat for old growth dependent species may be partly accomplished through silvicultural and thinning prescriptions. The most important research needs are for information on species/habitat relationships to improve and validate the wildlife habitat relationships program and the development of silvicultural treatments that benefit wildlife.

Extensive stands of old growth timber in Southeast Alaska sustain many species of wildlife that depend upon this particular habitat to meet their needs. These include such species as black-tailed deer, mountain goat, marten, and bald eagles. Much of this habitat is classified as commercial forest land and is subject to timber harvest. The amount of cutting that can be sustained without having a major impact on wildlife populations is an important management concern. Provisions are made in each timber harvest area to retain a portion of old growth forest habitat to meet wildlife and other resource needs. There is however, concern by the public, the Alaska Department of Fish and Game, conservation organizations, and others that these retention measures may not be adequate to maintain wildlife populations at desired levels. Current studies on black-tailed deer/forest habitat relationships need to be expanded to determine how deer and other old growth dependent species respond to different timber harvest techniques and prescriptions, or adapt to modifications in their environment.

Southcentral Alaska

This area provides some of Alaska's most important wildlife habitat due to its high productivity and accessibility to the largest segment of Alaska's human population.

Prime habitat for millions of migratory waterfowl, shorebirds, and sea birds is found in such areas as the Susitna River lowlands, the Chickaloon Flats, Copper River Delta, Controller Bay, Icy Bay coastal lowlands, Portage Flats, and the Kenai-Swanson River. These areas provide resting, feeding, and staging grounds for hundreds of species of migrant waterfowl and other birdlife; they also provide key nesting and rearing habitat for about 170,000 ducks, geese, and swans, including the entire known population of approximately 30,000 dusky Canada geese. Trumpeter Swans breed throughout the Susitna lowlands, Kenai, Copper River Delta, and coastal lowlands to Icy Bay. Their fall flight of 1,300 to 1,400 comprises a major portion of the known North American population.

Moose, Dall sheep, mountain goat, black-tailed deer, black bear, and brown-grizzly bear are the primary big game species in the area. Black-tailed deer are found on some islands of Prince William Sound, and on Kodiak and Afognak Islands. Coyotes, fox, wolverine, and wolves, are found on most of the mainland. Furbearers such as beaver, marten, weasel, and muskrat are found in the Region. Upland game species include spruce and ruffed grouse, ptarmigan, and snowshoe hare.
Alpine uplands and steep rocky slopes provide prime habitat for Dall sheep on northern and western portions of the Kenai, Chugach, and Talkeetna Mountains, and in the Alaska Range. Populations are at the carrying capacity of their ranges, and are currently stable.

Mountain goats are relatively common in the coastal mountains from Icy Bay to Cook Inlet. North of the Talkeetna Mountains, numbers are low. Populations were stable until the 1970's when area-wide declines occurred due to weather and local overhunting.

Black bear are widely distributed. Highest densities occur in lowland forested areas of Prince William Sound, Kenai, and the lower Susitna Valley. Populations are generally stable. Brown bear are found throughout all of the area except upper Prince William Sound, where the population is limited. Bear populations near centers of human activity such as Kenai, and lower Susitna Valley are lower but stable.

Representatives of most of Alaska's nongame bird species are found within the area due to its great habitat diversity. Bald and golden eagles, and a wide variety of hawks and owls are also relatively common.

Demand for quality hunting is growing. The Alaska Department of Fish and Game has recognized this demand, and acknowledges it in their Alaska Wildlife Management Plan. In certain areas the use of vehicles for hunting has been prohibited in order to limit access and reduce hunting pressure. Other areas will also be managed to produce trophies rather than meat as a primary hunting objective.

Alaska's human population has continued to increase, especially during the past decade. Since over half of Alaska's population resides within this area, consumptive demand for wildlife generally exceeds available supply. Growth is expected to continue; the most rapid growth will occur near Anchorage, in the lower Susitna Valley and the Kenai Peninsula. Growth in population and development of such areas as Kodiak, Prince William Sound, and the Gulf of Alaska will be proportionately slower. Non-consumptive uses will continue to grow; demand for management to enhance this type of activity is expected to increase. Present and projected demands for wildlife resources in Southcentral Alaska are reflected below:

Wildlife Demand, Mid-1970's and mid-1980's,
Southcentral Alaska, expressed in number of licences or permits.
(Source: USDA Forest Service; Resources Planning Act (RPA), 1978)

SOUTHCENTRAL

Species	Demand Mid 70's	Demand Mid 80's
Furbearers	4,000	8,000
Moose	8,400	17,000
Beaver	100	250
Deer, Sitka	500	1,000
Mountain Goat	600	1,200
Sheep	1,500	3,000
Waterfowl	7,000	14,000
Upland Game	34,000	68,000

Estimates of abundance of some of the more important animals on the Chugach National Forest follow (Annual Wildlife Report, Alaska Region 1976-1980):

Chugach National Forest

Alaska Brown Bear	600
Black Bear	3,700
Black-tailed Deer	9,500
Caribou	400
Dall Sheep	1,000
Moose	2,500
Mountain Goat	4,100
Wolverine	1,000

Assumptions

The following assumptions are made concerning future wildlife supply and demand:

1. Both consumptive and non-consumptive wildlife use will substantially increase to the year 1990 in response to population growth, increased tourism and generally greater affluence. Non-consumptive use will grow and represent a change in public values.

2. Increased commodity use from forest and other lands will lead to greater wildlife impacts. Community expansion and other permanent developments may further reduce the extent and quality of wildlife habitat.

3. Growing populations will increase hunting pressure on all game species, requiring more restrictive regulations, especially near larger communities.

4. Expanded road systems will provide greater access for all uses of wildlife, creating problems of increased man-caused pressures on wildlife and distribution of hunting pressure.

5. It is anticipated that subsistence demands on wildlife will remain stable or perhaps show a slight increase. Demand will continue as long as people live in isolated areas and utilize wildlife. Dependency on furbearers will continue as long as fur prices are high enough to make trapping profitable on a part-time or full-time basis. Subsistence hunting, in most cases, will arise from choice rather than necessity.

6. Non-consumptive uses (photography, viewing, nature study) of wildlife are growing rapidly. Increasing numbers of hunting guides are including or substituting these activities in their services. The number of organized groups and private parties with this objective is growing.

7. Demand for moose exceeds supply, especially in Southeast Alaska. In those areas where moose populations are low due to weather and predation, demand generally exceeds supply. In most areas, however, demand for furbearers, waterfowl, and upland game does not generally exceed supply.

ESTUARIES AND TIDAL MEADOWS

Introduction

Thousands of miles of coastline border the Tongass and Chugach National Forests. Along this coast occur a great diversity of habitats that collectively account for the complex Southeast Alaska estuarine and tidal meadow environments. Estuaries and tidal meadows, although separate ecosystems, usually occur in close proximity to each other, and many species of fish and wildlife depend heavily upon both of these highly productive environments during various stages of their life.

Situation Statement

Estuaries

This category includes the tidal pools remaining in depressions along rocky shores after the tide recedes. Many animals either permanently inhabit these protected pools or scurry into them when adjacent rocks become exposed. Unprotected, surf-swept shores support another distinct community of plants and animals that either require surf or have adapted to tolerate it. Plants and animals inhabiting intertidal rocks have evolved adaptations for attaching to the rock substrate, or to each other, to gain protection from tidal and surf action. At low tide these organisms are adapted to either move lower on the rock face to remain moist (crabs) or possess some mechanism to avoid drying (barnacles). Kelp and algae beds provide special habitats for a variety of organisms and those fish and mammal species that feed upon them.

This environment characteristically produces organisms that feed upon plants or upon other animals that inhabit the environment. Shallow estuarine waters provide vital habitat for Dungeness crab, shrimp, flatfishes, and numerous other species.

Islands and shorelines provide important breeding, resting, and feeding grounds for birds and marine mammals because of their remoteness and abundant supply of nesting habitat or food. Rookeries are often located on steep, rocky headlands or small rocky islands and islets that furnish refuge from mammal predators while providing easy ocean access for adult birds and their young.

Tidal Meadows

Waterfowl and shorebirds occupy the grass-sedge tidal meadows bordering many of Alaska's estuaries. The habitat is vital for these species. Bald eagles nest in the forests of the Region, but never far from the estuaries and tidal meadows where they find most of their food. Almost all known eagle nests lie within 180 meters of saltwater, or along major streams.

Several species of terrestrial mammals forage the shorelines and marshes in search of the abundant food found there. The land otter feeds on mussels, other invertebrates, and fish. Mink and weasels regularly hunt along the shorelines. Marten, wolverines, and wolves also spend much of their time along the beach fringe during the winter months. During hard winters, when other food is scarce, Sitka black-tailed deer may be driven by deep snows to beach lines where they feed on dead beach grass, sedges, and kelp. In spring, they feed on early greening sedges and other marsh edge vegetation. Black and brown bears use this habitat, particularly during salmon runs, and in spring, when fresh greens first emerge and winter-killed deer become available as carrion.

Estuaries and tidal meadows also represent centers of human activity related to development of a variety of forest resources. Estuaries are normally associated with protected coves and bays, often the best sites for water-oriented developments such as log transfer sites, log storage areas, ferry terminals, temporary settlements and recreational use. The impacts such activities may have on estuarine or wetlands ecosystems must be carefully assessed, and management procedures must be developed and applied that reduce adverse impacts upon fish, shellfish and wildlife species.

Problems can stem from the current practice of storing log rafts in water prior to towing them to a mill. Grounding of stored rafts at low tide can cause damage by compacting intertidal and sublittoral aquatic vegetation and infauna where present. The Forest Service supports the selection of storage areas over water deep enough to prevent grounding of rafts at any tidal stage. Long-term research is needed to monitor log transfer sites and storage areas and to assess the effects of organic accumulation and leachates on water quality and marine biota. Results of this research will be used to modify existing Forest Service policies and practices in order to reduce or eliminate adverse effects resulting from those activities.

Assumptions

1. Human activities and impacts will increase in the estuarine and tidal meadow ecosystems of Southeast Alaska.

2. Fish and wildlife habitats within these ecosystems will require increasingly refined management measures based on better understanding of habitat factors to insure continued productivity.

3. Conflicts will arise between various uses such as resource development, commercial fishing, recreation or fish and wildlife management. Such conflicts will require resolution on a case-by-case basis with management prescriptions formulated during the planning process.

TIMBER

Introduction

Major timber resources occur in three separate geographical areas: Southeast, Southcentral, and Interior Alaska.

Available land classification and resource inventory data for the State were used. Because of the magnitude of Alaska and changing land ownership patterns, more information needs to be collected. When no other detailed data were available, information presented in The Forest Ecosystem of Southeast Alaska (Hutchison and LaBau, 1975), was used.

There are about 365.5 million acres of land in Alaska, which represent about 16 percent of the total land area of the contiguous United States. Of this 365.5 million acres, 119 million acres are forested lands equivalent to the total forest land area found in the States of Montana, Washington, Oregon, and California.

Situation Statement

Southeast Alaska

There are 24.1 million acres in Southeast Alaska from Dixon Entrance to Yakutat Bay.

The temperate rain forests are a segment of the continuous coastal forest extending along the Pacific Rim from northern California to Cook Inlet in Alaska. Undisturbed stands consist of trees of various ages, sizes, and conditions, many with dead tops and snags. Stands disturbed during the last century or two by harvests, windthrow, fire, or landslide contain trees of more uniform age and size, with fewer snags and defective trees.

In the southern part of Southeast Alaska, the forests are primarily western hemlock and Sitka spruce, with scattered western redcedar and Alaska-cedar. Northward, the percentage of hemlock increases, and cedars become less important. Western redcedar extends only to the northern shore of Frederick Sound, and Alaska-cedar is often found only as a small tree on wetter stands. In the northern portion of the area, mountain hemlock becomes more important. Other common species are red alder (along streams, on landslides, and on other disturbed areas), black cottonwood (in major mainland river valleys), and lodgepole pine (adjacent to muskegs and other poorly drained sites). Less common species include subalpine fir and Pacific silver fir.

The best stands of timber are generally found at lower elevations near tidewater. Stand heights, volume per acre, and quality diminish progressively with increasing elevation.

Interspersed with the stands are wet openings which usually consist of muskegs. The deeper muskegs are dominated by sphagnum mosses, while the shallow ones consist mainly of sedges, rushes, and ericaceous shrubs. Often there are a few poorly growing trees on muskegs consisting primarily of scrub hemlock and lodgepole pine. Muskegs are also suitable for many plants with edible berries, may furnish scenic viewpoints for the foot traveler, and under some conditions help to regulate streamflow.

Between true muskegs and dense forest there is often a transition zone of more open forest stands growing primarily on organic soils (Stephens 1969). Here any of the tree species occuring in Southeast Alaska may be found but tree growth is slow and form often poor. The open canopy that results, allows light to reach the forest floor in sufficient amounts to support dense understory vegetation of blueberry, huckleberry, rusty menziesia, and numerous small vascular plants. These stands are important wildlife habitat.

Above timberline (generally 2,500 to 3,000 feet) the alpine zone is dominated by heaths, grasses, and other low plants. Such plants as deer cabbage cover wide areas, and provide excellent summer range for deer. Occasional trees occur, often in stunted or shrublike form, due to adverse growing conditions. The alpine area provides many fine recreational opportunities.

Southeast Alaska's forests contain fewer tree species than coastal forests to the south, since species diversity generally decreases with increasing latitude. Nine conifer species and 22 broadleaf species attain tree size. Of these, four species are sought for commercial harvest: western hemlock, Sitka spruce, western redcedar, and Alaska-cedar. Mountain hemlock is logged with western hemlock when encountered in mixed stands. Pacific silver fir and subalpine fir occur in limited areas and may be harvested, although neither species is sought for harvest. Lodgepole pine is used locally for Christmas trees but is seldom found in dense commercial stands and is rarely cut. Black cottonwood has been harvested occasionally and tested for use in dissolving pulp, but it is not being harvested today. Red alder is used locally for carving, and smoking fish. Alders fix atmospheric nitrogen and are valuable in improving soil fertility. All of these species are utilized for firewood.

The forests contain many shrub species -- Viereck and Little (1972) describe 72 important species. Many of these shrubs are characteristic of the dry interior and appear in Southeast Alaska only in the drier transition zones at the head of Lynn Canal and Portland Canal. At present, berries are the only shrub products gathered commercially, on a limited scale. Berries are also used extensively by local residents.

Major timber harvest programs on National Forest lands include three long-term sales on the Tongass which provide timber for integrated wood processing. Pulp mills are located at Sitka and Ketchikan. These mills are guaranteed an annual volume of 297 MMBF.

Historically, National Forest timber harvests have ranged from 422 MMBF to 565 MMBF annually. This has provided 2,450 to 3,500 jobs in the timber industry, which includes logging, marine cargo, log transport, cant and pulp processing, and construction. These industry jobs, plus local Forest Service employment, have generated an estimated 2,900 to 4,100 additional jobs throughout Alaska's economy. Alaska Native land managers indicate Native lands are expected to be harvested at an accelerated annual rate of 225-250 MMBF. If this is correct, an increase in industry employment of 500-600 jobs is anticipated. In terms of gross income to the timber industry, National Forest timber has produced an average equivalent of $260 million annually in 1980 dollars, adjusted for inflation. This, in turn, has generated an estimated $420 million additional throughout the State's economy.

Some Forest Service research indicates that Native round log exports could depress log prices and/or displace some of the existing cant market, since the final product of each is often the same. Historically, the Japanese have shown a decided preference for round logs rather than cants, and for spruce rather than hemlock. The greatest displacement is in the manufacture of hemlock cants. Little effect on the spruce cant market is expected. Since National Forest timber cannot be exported without primary manufacture, it is unlikely that the cant market will be totally eliminated.

From the 16,954,713 acre Tongass Forest, roughly 2.25 million acres are available for commercial harvest. To meet the Alaska Lands Act volume provision of 4.5 billion board feet per decade, approximately 450 million will be planned for harvest, involving 14-20,000 harvest acres annually. Approximately 250 to 300 miles of access road will need to be constructed annually for the next several years. These plans are predicated on a $40 million (plus) annual Congressional appropriation, as indicated in the Alaska Lands Act for advance roads and timber stand improvements.

The maximum sustained timber harvest for lands being managed for timber production (with constraints applied to meet multiple-use objectives) is approximately 700 MMBF per year, long-range sustained yield. This volume would involve approximately 15,000 acres of actual harvest area annually. This will not be obtainable until all the regulated commercial forest land is under management, which is estimated to be at least 110 years from now.

Southcentral Alaska

Southcentral Alaska includes coastal lands from the Bering Glacier on the east to Kodiak Island on the southwest. The total land area is 8,778,000 acres, of which 2,046,000 acres are forested.

The Forests of Southcentral Alaska are the northernmost extension of the coastal temperate rain forest. Some of the tree species found in the Southeast area do not occur in Southcentral forests.

In the Southcentral sections of the coastal forests, tree specie composition changes. Western redcedar is not found north of Frederick Sound; Alaska-cedar is not found extensively in Prince William Sound. Cottonwood is extensive along glacial outwash rivers and becomes commercially important on alluvial terraces. Western hemlock becomes of less importance westward, but has been reported as far west as Cook Inlet. Sitka spruce is the only important tree in the coastal forests west of Cook Inlet, and the only conifer on Afognak and Kodiak Islands. White spruce, black cottonwood, paper birch, and aspen dominate in non-coastal areas.

No total potential yield has been calculated for the Southcentral area, which encompasses the Chugach National Forest.

Relative to Southeast Alaska, Southcentral Alaska has a low volume of harvestable timber. In the Chugach National Forest, 750,000 acres are classified as commercial forest land.

Forestry employment is a minor component of the total Southcentral economy. Projected employment to the year 1990 ranges from 385 people to 585 people, depending on overall economic growth in the area. The low estimate assumes current levels of harvest in 1990.

Interior Alaska

Interior Alaska includes a total area of 322 million acres. This immense area has varied topography, vegetative cover, and climatic conditions. Continuous and discontinuous permafrost (permanently frozen ground) occurs at varying depths throughout the region, and influences vegetative type and growth patterns. Although annual precipitation is characteristic of a dry region, up to 30 inches, permafrost holds moisture near the surface. A heavy ground cover of grasses, mosses, shrubs, and trees retards surface runoff and in many areas insulates the permafrost, preventing melting. Consequently, except on south-facing slopes, plant growth and plant distribution do not appear to be limited by lack of moisture.

Alaska's interior forests cover about 106 million acres, about one-third of the total land area. One-third consists of grasslands, brush, swamps, and tundra, with a small fraction in agricultural crops. The remaining one-third is barren rock or ice and snow. Although forests extend to the Arctic slope, the better stands are generally confined to the lower slopes and valleys of the larger rivers and their main tributaries. These forests are capable of producing about 20 cubic feet of wood per acre per year.

Principal forested regions include drainages of the Susitna, Copper, Tanana, Yukon, and Kuskokwim Rivers. Extending beyond to the western and northern limits of tree growth are another 83 million acres of sparse or open woodlands. Permafrost, high water tables created by compact and statified glacial materials, thin soils, and severe climatic conditions are factors responsible for the stunted and sparse tree growth over much of this area. In spite of these limiting factors, forest lands extend along much of the Porcupine, Chandalar, Koyukuk, and Kobuk Rivers and their tributaries.

Interior forest types are generally not pure stands, but rather mixtures of the four major commercial species, white spruce, paper birch, aspen, and balsam poplar. Stands are classified however, on the basis of predominant species.

Heavy dependence on imported plywood and lumber, including pre-cut house logs, has been the pattern in Interior forests for the postwar years. Little use has been made of Interior forests other than for local markets and subsistence. The emergence of Native ownerships, and soaring costs of fuel oil are combining to stimulate increased use of local forests by bush communities. As management develops, log export is likely to develop, helping to provide urgently needed cash. Imported wood products will probably continue to prevail in the area until populations warrant establishment of major wood industries. As in Southeast Alaska, the markets for Interior forests are export markets. No information regarding amount of timber on State, Federal, or Native land ownerships is available; therefore the potential supply of timber is unknown. The greatest potential for population growth and internal markets exists in this area.

Overall, Alaska possesses large quantities of high quality softwood sawtimber. Dimension lumber demands in Alaska are currently about 70 million board feet annually. The Pacific Northwest area successfully supplies these markets although a small local, green-sawn lumber market exists.

That timber has not been strongly competitive in national markets appears to be due to high production costs and distance from markets. Most of Alaska's timber market is dependent upon Japanese demand. It is expected that timber will continue to be exported to Japan at least until 1990, but may then slowly decline. Future foreign markets that appear favorable involve South Korea and China (mainland), and to a lesser extent other Pacific Rim countries such as Canada, New Zealand and Russia. The outlook for export to the domestic market in the lower 48 states appears to be improving.

The Forest Service initiated efforts to establish a pulp industry as early as 1920, to diversify and stabilize Alaska's economy and attain full utilization of Southeast Alaska's timber resource.

The first of three long-term sales to encourage the multi-million dollar investments required was awarded in 1948 to the Ketchikan Pulp Company, and included 8.25 billion board feet to be harvested over 50 years. Subsequent sales were awarded in 1954 to the Pacific Northern Timber Company of Wrangell, and in 1956 to Alaska Lumber and Pulp Company of Sitka for 5.25 billion board feet. The Pacific Northern Timber Company was unable to develop the required pulping facility and the contract terms were adjusted to provide 693 Million board feet for operation of the sawmill over a term of 25 years.

The first of the so-called "Juneau Unit Pulp Sales" was awarded in 1955 for cutting rights to 8.75 billion board feet. Over time, 1965 and again in 1968, efforts to develop mill facilities were abandoned, most recently as a result of continuing litigation and increasing costs, with the result that Juneau Unit Sales were cancelled in 1976.

Efforts to establish a timber manufacturing industry in the Kodiak-Afognak Island area, in conjunction with similar offerings by the State of Alaska, resulted in the award of 210 billion board feet. The Alaska Native Claims Settlement Act and the Alaska Lands Act conveyed the entire sale area to various Native corporations. The conveyance is subject to existing valid rights and the Timber Sale Contract that will expire August 3, 1984.

The Alaska Lands Act provides that appropriate monies, as needed, will be available to maintain the timber supply from the Tongass National Forest to dependent industry at a rate of four billion five hundred million foot board measure per decade.

Assuming favorable market conditions, long-term average Native harvests are expected to be 225 to 250 Million board feet annually. It is assumed that the higher quality logs will be exported in the round and that only a small proportion (low quality logs) will find their way into local pulp markets.

Recognizing the need to provide greater opportunities for small businesses to access Alaska's National Forest timber and stimulate competition, the Forest Service and the Small Business Administration, in March 1977, initiated the first of continuing agreements providing for a set-aside timber sale program. The agreement, which expires September 30, 1982, provides an annual average of 80 Million board feet on the Tongass and five Million board feet on the Chugach National Forest for preferential bidding by qualified small businesses.

The Salvage Sale Timber Sale (SSTS) Program was established in the National Forest System to further encourage greater competition and opportunity for small businesses to enter the timber sale contract market. (The Program is limited to businesses which employ up to 25 people.) The Program will improve effective use of wood material in situations involving salvages. The SSTS program is being formally organized in Alaska this year.

Allowable timber harvest volumes from Alaska's National forests depend on several variables. These include productivity of the forest, current logging technology, silvicultural practices, and the interrelationships among other forest resources and the environment.

The timber program also includes planting, free use permits, silvicultural stand examination, and timber stand improvement. The need for planting has resulted in the establishment of a nursery at Petersburg capable of growing one million containerized seedlings annually. There are approximately 7,000 acres of National Forest lands in total which will require planting.

Free-use permits for firewood have increased dramatically since the 1974 energy crisis and demand for firewood is expected to continue to increase. There is also a limited free-use demand for house logs.

Silvicultural stand examinations are carried out to provide base data used in the development of management prescriptions. This also includes an assessment of sale area improvement needs.

There is an active timber stand improvement program, and approximately 3,500 acres of precommercial thinning was completed in 1980.

Hemlock dwarf mistletoe is prevalent in Southeast Alaska, and its control is a major concern of the insect and disease control program. Since 1967, 14,000 acres have been treated on the Tongass National Forest. Mistletoe is not found on the Chugach National Forest. There is extensive bark beetle activity in Southcentral forests which needs management.

Assumptions

1. The world demand for wood fiber will increase. Over the long run, demand for pulp and paper will rise and stimulate the development of new supply areas.

2. The short-run outlook for Alaska chip export will be similar to pulp production.

3. The production and export of round logs from private lands will continue in the immediate future since this market appears strong.

4. The most favorable market for cants and round logs will continue to be Japan.

5. Some timber presently classified as marginal will be reclassified as standard or special due to changing economics and new logging techniques.

6. The increase in price for wood products will lead to more complete utilization of wood fiber.

7. Timber yields will increase as application of silvicultural techniques, such as thinning, are applied on a larger scale.

AGRICULTURE AND RANGE

Introduction

Agriculture in Alaska dates from 1795 when Russian trading companies gave consideration to agriculture in selection of trading-post sites. Fresh milk, fresh meat, and fresh vegetables were of particular concern. A second significant effort of a subsistence nature was the introduction of reindeer on the Seward Peninsula in the 1890's. Reindeer number exceeded 600,000 head at one time, but they declined very rapidly during the late 1920's and 1930's. A new herd program is now underway on the Seward Peninsula. During the 1930's farm developments took place in the Tanana Valley and Matanuska Valley areas of Interior and Southcentral Alaska. Presently, the State is promoting clearing and development of large-scale barley and dairy farm projects in the Tanana and Southcentral. Range use also includes the most areas used by caribou and moose, as well as the milk cow pasturage in the Matanuska Valley.

Situation Statement

Agriculture

An interim goal of about 500,000 acres of land clearing has been set by the State. The first pilot project in the Tanana River (Delta No. 1) was completed for barley crops. Delta No. 2 is planned, along with large-scale clearing for hay and dairy farming at Pt. McKenzie, near Anchorage. Considerable controversy has resulted concerning the disposal of the timber from these sites.

Range

The NANA Regional Corporation is engaged in reindeer herding on the Seward Peninsula. U.S. Department of Agriculture is involved with range surveys there. Other similar tundra ranges are utilized by caribou, in part. Moose and caribou also frequent taiga complexes (mixed forest-tundra) and, in the case of moose, river bottoms which are forested. A potential for increased beef cattle and house use exists particularly in Southcentral Alaska. In these areas, an opportunity for forestry uses exists, also.

Assumptions

1. Continued emphasis on agriculture will result also in more consideration of other uses such as wildlife and forest products.

2. Market studies for utilizing timber on agricultural clearing will be emphasized.

3. Utilizing forestry principles to enhance moose habitat will gain emphasis.

MINERALS AND GEOLOGY

Introduction

Management of mineral developments on National Forest lands has assumed increased importance within recent years. While intensive modern exploration has been limited, the potential for new discoveries and expansion of older known deposits remains high. The recent discoveries by U.S. Borax (world's second largest known deposit of molybdenum) and Noranda Exploration and extensive exploration on the Yakobi-West Chichagof deposits are examples of the mineral potential in Southeast Alaska alone. The estimated gross value of the Borax deposit at the end of the 1980 working season is estimated at 17 billion dollars in the ground.

Situation Statement

Many of the minerals considered to be strategic or critical are found in the National Forests of Alaska. Some of these are:

Cobalt	Barium
Platinum Group	Tungsten
Chromium	Gypsum
Asbestos	Iron
Nickel	Copper
Gold	Lead
Zinc	
Silver	

The Projected National demand for some of these same minerals is significant:

	5-Year Average 1971-1975	1985
Cobalt	7,282 metric tons	10,778 metric tons
Platinum Group	1,659M troy oz.	2,442M troy oz.
Chromium	1,149M metric tons	1,238M metric tons
Nickel	160.5M metric tons	210.5M metric tons
Zinc	1,159.8M metric tons	1,600M metric tons
Copper	1,886M metric tons	2,610M metric tons
Iron ore	85.4M metric tons	106M metric tons

Source: World Demands for Raw Materials in 1985 and 2000: Wilfred Malenbaum, Professor of Economics, University of Pennsylvania.

The amount of future mineral exploration is difficult to predict, since these are functions of private enterprise and fluctuating world markets. Exploration tends to be secretive by nature because of uncertainties of future values and technologies and in order to protect private interests. However, there is evidence that exploration is increasing. In Southeast Alaska, historical gold producing areas near Karta Lake on Prince of Wales

Island; the Cleveland Peninsula; the Chichagof and Hirst Chichagof on Chichagof Island; Mansfield Peninsula on Admiralty Island; Berners Bay area; Douglas Island; Hyder as well as the entire length of the Juneau gold belt are being re-explored. Copper, lead, and zinc deposits at Tracy Arm, Sumdum Glacier, Woewodski Island, Duncan Canal, and Ground Hog Basin are receiving much attention and work continues on a barium, zinc, and silver deposit on Admiralty Island. Exploration is expected in the Kassaan Peninsula area at the old Copper Palladium mines. Other companies are exploring by geochemical and geophysical means throughout Southeast Alaska.

The Southcentral region includes areas along the Gulf of Alaska from Stepoval Bay east and includes the Chugach Forest and the Yakutat forelands.

In Southcentral Alaska, mineral occurrences appear to be concentrated around Chignik and Kodiak Islands. Gold, silver, copper, lead, zinc, chromite, and platinum have been found. Non-metallic minerals such as coal are found near Chignik, sulfur at Stepoval Bay, and pumice deposits adjacent to volcanic areas. Chignik and Kodiak Islands are rated as high metal concentrations.

The Kenai Peninsula and the Prince William Sound areas have been explored for copper, gold, and silver. The copper mines on La Touche Island were exploited in the early part of the century, however exploration continues on La Touche and nearby islands. Gold is present in most streams of the mainland although the Kenai Peninsula receives most of the impact because of accessibility by highway. Recent studies by the Bureau of Mines in Prince William Sound indicate that several areas previously unexplored have potential for good values in placer gold.

To the east of Prince William Sound in the Valdez district are many gold prospects with production including gold, silver pyrite, galena, sphalerite, chalcopyrite and minor amounts of stibnite (in sulfide).

Coal was discovered in the early part of the century near Kushtaka Lake and subsequent drilling indicates reserves estimated at 3.6 billion tons. Three applications for prospecting leases totaling about 69,000 acres are being processed.

The first oil field in Alaska was discovered at Katalla in 1903. Limited production continued until 1933 when the refinery burned. Presently, interest is increasing in the area and there are 164 applications for oil leases pending, covering an area on both sides of the Copper River. As most leases are for 2,560 acres approximately 317,000 acres are involved.

Five test wells were drilled in the Yakutat area in the late 1950's with two having a show of oil. Other than some extensive seismic work in 1973, interest has been low. However, there are now three applications on file for leases and interest is increasing. Lease sales are being made on the outer continental shelf west and southwest of Yakutat.

There is considerable potential for geothermal energy throughout both Southcentral and Southeast Alaska. Two of the largest areas, Mt. Katmai and Mt. Wrangell, are considered to have extremely high potential. Additionally, there are some 25 active and inactive volcanoes throughout the area that have a high potential.

In Southeast Alaska, Mount Edgecombe, an inactive volcano near Sitka, and the area from this mountain northward to White Sulfur Springs and east and southeast as far as Tenakee Springs has good potential. Other hot spring areas are at Goddard, south of Sitka, Bell Island north of Ketchikan, and the Stikine River area east of Wrangell.

Assumptions

1. Mineral exploration and development will increase, adding to the economic base of Alaska.

2. New mineral deposits will be discovered. With these discoveries, and prior to actual mining, towns or camps will be constructed as well as ore concentrate facilities, power sites and dams.

3. Mineral sources previously considered uneconomical will become marketable.

4. Oil and gas exploration and development will increase significantly in the Yakutat and Copper River areas.

5. An increased effort will be required to identify and implement protection measures needed to minimize environmental impacts relative to mining, oil and gas exploration and development projects.

6. Sand, gravel, and rock will continue to be in demand throughout the National Forests.

7. Coal exploration and development will begin in the Bering River area.

8. Geothermal development is not a viable development option in the foreseeable future.

RECREATION

Introduction

The National Forests of the Alaska Region contain a remarkable and unique array of recreation attractions including abundant wildlands, huge glaciers reaching to the sea, protected inland waterways, rugged coastlines, hundreds of islands, fiords, a variety of fish and wildlife, free-flowing rivers, and other features which cannot be found elsewhere in the United States. These features, along with the Region's generally low population density, impart a feeling of vastness and wildness to visitors and residents alike which is becoming increasingly difficult to obtain nationally. This is a primary part of the Region's appeal to many people.

Situation Statement

The Region, while still predominantly undeveloped offers the visiting public a wide spectrum of recreation opportunities. Available recreation settings range from primitive through semi-primitive, roaded natural and rural. 1/

Many of the primitive and semi-primitive settings will remain so. Of the 22,894,753 acres now contained in the Tongass and Chugach National Forests 23 percent or 5,362,000 acres has been added to the National Wilderness Preservation System by the recently passed Alaska Lands Act. Nine percent or 2,222,000 acres has been identified for Wilderness study (on the Chugach) under the same act. In addition, 12 percent or 2,746,000 acres (on the Tongass) are being managed to limit road building and development activities. Numerous other lands (e.g., non-commercial forest, alpine areas, etc.) which lie within areas scheduled for development actions will also remain primitive or semi-primitive in the long-run. The remaining widely distributed primitive and semi-primitive lands which comprise roughly one-third of the Region will gradually be modified by development activities to satisfy other multiple-use goals. Much of the private land within the above areas is currently undeveloped.

Scattered private parcels are located in protected bays and along shorelines or, in the case of the Kenai Peninsula, along the road system. As these lands are developed, they will, influence the character of the recreation settings available on public lands. In the future there will be very few bays that do not have some development in them, such as cabins or small resorts.

Many "roaded" natural settings are also available. Portions of the numerous protected waterways of Southeast Alaska and Prince William Sound are regarded as in-place recreation highways and by-ways by many coastal Alaskans who use small boats and float planes as logical substitutes for land-based recreation vehicles. When combined with existing forest road systems, these marine "roadways" (as well as inland lakes) provide means of access to a majority of National Forest lands. The fact that visitors can travel (with due respect for travel costs) to many areas of two largely

1/Recreation opportunity spectrum terms (see Appendix A).

undeveloped forests using air and marine motorized vehicles is a unique aspect of the management situation in the Region. In contrast to their counterparts in the "Lower 48," forest visitors are much less dependent on roads for primary access to the National Forests. Conversely, they often face difficulties or challenges in reaching their chosen destinations, given the variability of weather and marine conditions and the related limitations of airplanes and boats. With the major exception of the Kenai Peninsula portion of the Chugach, the common use of boats and planes has a strong bearing on why a majority of the "dispersed recreation" use within the Region occurs along the coastline and around inland lakes.

Because of dependence on air and marine transportation systems, visitors often have little or no direct contact with the land. Many visitors view the magnificent scenery, especially from ferries and cruise ships, almost as though they were in an "isolation booth." To enhance their experience and understanding of the forest environment, the Forest Service, under a cooperative program with the State of Alaska, provides an interpretive program on the State ferries travelling the Alaska Marine Highway. One-day trips by resident recreationists and tourists is largely concentrated in close proximity to existing communities. Overnight trips are widely dispersed, but occur in narrow bands along saltwater shorelines, lakes, rivers and on the Kenai Peninsula highway system or trails.

Most of the Region's public use cabins (about 200), private recreation cabins (about 50), eight privately operated public resorts and 600 miles of trails are located in recreation settings which are considered semi-primitive or roaded natural. In addition, there are numerous resorts and cabins on private land within the National Forests.

There are also a fair number of rural settings throughout the Region, particularly in close proximity to existing communities. These are the areas in and around developed sites which serve as both visitor destinations for concentrated recreation activities and points of departure for dispersed activities. National Forest recreation facilities within such settings include 26 campgrounds, 28 picnic grounds, two visitor centers, 21 interpretive sites and three ski areas. All of these facilities are accessible by Forest Service and State road systems. Most of the facilities are ten or more years old, and many of them are in need of rehabilitation. In addition, there are campgrounds and visitor centers operated by the State, Native, or private parties on private land.

The three ski areas the Forest Service is currently, National Forest involved with include the Alyeska and Turnagain Pass areas on the Chugach and Eaglecrest on the Tongass National Forest. Turnagain Pass is managed primarily for cross-country skiing and snowmobile use. The other two are down-hill skiing areas.

Protection of scenery along inland waterways, road systems and around communities is particularly important to tourists and local residents. In a recently completed tourship survey, scenery was picked as the number one reason people are using tourships in Alaska. Research has shown that the majority of advertising space for Alaska is spent on promoting natural

features (scenery). Forest Service policy in Alaska, as well as nationally, recognizes the importance of managing for scenic quality in all uses and activities (See Appendix A). This is implemented through assignment of visual quality objectives (see) which are related to land areas based upon their public sensitivity and visual qualities.

The potential for visual changes in many areas outside wilderness generally may increase in some sensitive public areas in the future. Conflicts with commodity uses will be increasing. Until recently, options were available to spread the potential visual impacts of development over essentially the entire Regional land base. Now, however, development will be concentrated in less area because of land-use allocations which have made fewer areas available for such purposes. The potential for conflict over development impacts is significant because a considerable portion of available commercial forest land is adjacent to the Inland Passage water routes and other areas used extensively by the public for transportation, recreation and tourism.

The Region is naturally suited for dispersed recreation activities in which participants range over fairly large areas. Such activities, including boating, tourship travel, fishing, beachcombing, hiking, tent camping, photography, hunting and others, now account for about 78 percent of the three million yearly recreation visitor days of use in Alaska's National Forests. The continuing provision of recreation opportunities for dispersed activities is emphasized in the National Resources Planning Act Program for the National Forests. The prime focus for recreation management in Alaska's National Forests will be on the provision of appropriate recreation settings for such activities to accommodate current and anticipated use. A vital part of such management is the protection of scenery. In many instances recreation opportunities are available without the need for any development. However, there is a basic need by many potential users for information which can be supplied in the form of maps and leaflets. Others need help to get oriented to the equipment and techniques necessary to use the available opportunities.

Developed area recreation involves activities that are concentrated in relatively small areas. Such activities, including down-hill skiing, picnicking, camping, visitor interpretive sites, resort lodging and others, account for the remaining 22 percent of the recreation use within the Forests. Due to the ongoing transfer of National Forest lands to the State and to private ownership under provisions of Alaska Native Claims Settlement Act and the Alaska Statehood Act, the future role of the Forest Service as a prime provider of developed sites for community related recreation use will be diminished.

Recreation use traditionally radiates from a community or a cluster of services (service center). This is true elsewhere, but especially evident in coastal Alaska where jet airplanes, state ferries and cruise ships provide transportation links between these modes of development. With State and Native land selections taking much land around the communities, the responsibility for providing local recreation, services and accommodations shifts from National Forest land to the State or private sector. Many of the communities view tourism as a way to broaden their

economic base or to grow beyond subsistence-level economies. The challenge to the National Forest administrators is to adjust programs so that National Forest opportunities and services complement those offered by State or private lands. Cooperative planning and scheduling will be increasingly important.

During the 1970's, new resorts and their recreation services have developed steadily in or adjacent to the communities. This trend is likely to continue due to economic advantage in service centers. However, resorts have been slowly developing in more isolated locations. While these traditionally are marginal economic operations, they provide worthwhile public services, a safety margin to travelers and a lifestyle to the operator. There are numerous parcels of private land in coastal Alaska. These were salmon canneries, salteries, homesites, homesteads, fox farms or remnants of other activities abandoned many years ago. These private lands were selected for their proximity to good fishing areas, water supplies or good anchorages; they offer prime development sites. In addition, thousands of acres of land in outlying areas have been selected by Native groups. One concern that has been expressed by some of these landowners is that the National Forest lands not be developed in competition with them. Another concern is that private land development will gradually change the character of coastal areas from its present semi-primitive character to one of a more rural, sparsely populated character.

It is estimated total recreation use in the Forests may increase to 3.7 million recreation visitor days by 1985. The majority of the projected increases are expected in dispersed activities, with developed site use growing at a much slower rate. Continuing growth in total recreation use is projected through 1990 and the decades beyond. Much of this projected growth is linked to tourism which has been growing at a 10-15 percent annual rate on a statewide basis, and is now the State's second largest industry. Resident recreation use, which is strongly tied to changes in population, is projected to grow at a rate slightly faster than population growth. See Table 1 for existing use.

Assumptions

1. The combination of unique recreation resources in Coastal Alaska will receive increasing local, State, National and international attention and use.

2. Recreationists and principal route travelers will demand higher quality of scenery management with a minimum of obvious modication due to increased environment sensitivity and to high costs they sustain to travel and view the scenery.

Table 1
RECREATION USE
Basis: F.Y. 1980 Recreation Information Management (RIM) Outputs
All Figures in MRVD

Developed Recreation Areas	Stikine	Chatham	Chugach	Ketchikan	R-10 Totals
Observation, Playground, Sports Sites	.6	12.6	26.2	.0	39.4
Boating, Swimming Sites	.0	3.4	1.1	.3	4.8
Campgrounds	12.5	58.9	140.5	37.3	249.2
Picnic Areas	5.3	45.0	1.9	7.1	59.3
Lodges	.0	.8	21.5	.5	22.8
Organization Sites	.0	10.9	4.6	.3	15.8
Recreation Residences	.0	8.4	13.8	.5	22.7
Winter Sports Sites	.0	32.5	69.2	.0	101.7
Interpetive Sites	.0	20.7	19.9	1.3	41.9
Recreation Cabins	9.3	31.2	30.5	15.5	86.5
SUBTOTALS	27.7	224.4	329.2	62.8	644.1
Dispersed Recreation Areas					
Recreation Roads	8.7	80.0	224.0	15.6	328.3
Recreation Trails	3.5	49.1	226.9	3.1	282.6
Ocean, Salt	462.8	543.1	55.8	172.8	1234.5
Lakes, Ponds, Reservoirs	7.9	65.1	15.6	17.5	106.1
Rivers, Streams	26.4	24.8	28.9	13.3	93.4
General Undeveloped	44.2	141.4	79.5	40.6	305.7
SUBTOTALS	553.5	903.5	630.7	262.9	2350.6
REGIONAL TOTALS	581.2	1127.9	959.9	325.7	2994.7

MRVD - Thousand Recreation Visitor Days (RVD is equivalent to one person for 12 hours).

3. Most private land will be developed to some degree over time, thus fulfilling demand for additional private recreation residents, marinas, and resorts and other accommodations.

4. All modes of transportation will increase and operate at full capacity to meet increased tourism demands. However, the capacity of the Alaska Marine Highway System will limit road-oriented recreation equipment in Southeast Alaska.

5. Tour ship excursions to Southeast Alaska will increase, taking greater numbers of visitors through the Forest.

6. There will be additional ferry service to smaller island communities with more visitors using the surrounding areas.

7. The numbers of pleasure boats having overnight accommodations will continue to increase. Use will radiate from communities to more remote forest areas.

8. Some visitors who come via the Marine Highway will have recreational camping vehicles and cartop boats allowing them to utilize recreation opportunities accessible from the road systems.

9. Demand for off-road vehicle use (especially snowmobiles) will increase.

10. Cultural and historic resources will receive increased public interest and visitations.

11. Most development will occur on commercially timbered forest land. In addition to timber production, significant portions of these timbered lands, especially coastal shorelines, will continue to be in demand for recreation and scenic values because of their quality, saltwater access or other features.

12. The demand for a variety of trails will increase with emphasis on less developed or primitive trails.

13. The demand for viewing and photographing wildlife in natural surroundings will increase particularly in more accessible areas. Seabird colonies, bald eagles, mammal rookeries and viewing areas for brown bear, mountain goat and waterfowl will serve as foci for this trend.

14. Higher fuel costs and inflation are likely to change use patterns over the long-term (i.e., concentrating use around communities, extended overnight trips. etc.)

15. New land use allocations and State and Native selections are likely to increase use concentration on National Forest lands.

16. "Adventure" related tours (i.e., wilderness type packages) will continue to be the fastest growing sector of the tourism industry.

17. Communities will provide accommodations and services to the recreation visitor to broaden their economic base.

18. State grant monies will continue to be available to communities for recreation facilities.

19. There will be an increase in the numbers of people who visit National Forests in Alaska with the principal objective of enjoying the recreation and scenic resources.

20. Recreation use will increase in proportion to population and income growth for Southeastern and Southcentral Alaska. Nonresident use is expected to increase at historic rates (10-15 percent State-wide) throughout the 1980's.

21. Cost of liability and management will cause private landowners to limit free public use of their lands.

22. Conflicts will increase between user groups, due to increased participation in activities which, by their very nature, conflict. This will most often occur in areas adjacent to communities.

23. As a result of classified wilderness, there will be a need for management plans and increased focus on recreation-related administration of those areas.

24. Changes in land jurisdiction or ownerships will affect access development and types of future management.

25. Future economic developments will alter recreation opportunities available or reduce the potential for some opportunities.

26. Visitors will generally be using mass mode transportation systems (i.e., commercial air, tourships and ferries) both as a time saver and cost saving measure.

27. There will continue to be a shift in the type of persons vacationing in Alaska from retired persons to middle-aged persons (from professional and managerial groups) who actively seek recreation experiences beyond the traditional fare of cruise ship voyages and conducted city sightseeing.

28. Much of the use of private land will move torward its highest economic use over time.

WILDERNESS

Introduction

A total of 56,393,000 acres of federal lands in Alaska became wilderness on December 2, 1980, with the signing of the Alaska Lands Act. On the Tongass National Forest where the land management plan is complete, the following areas were made wilderness:

Name	Acres
Admiralty Island National Monument Wilderness	900,000
Coronation Island Wilderness	19,122
Endicott River Wilderness	94,000
Maurelle Islands Wilderness	4,424
Misty Fiords National Monument Wilderness	2,136,000
Petersburg Creek-Duncan Salt Chuck Wilderness	50,000
Russell Fiord Wilderness	307,000
South Baranof Wilderness	314,000
South Prince of Wales Wilderness	97,000
Stikine-Leconte Wilderness	443,000
Tebenkof Bay Wilderness	65,000
Tracy Arm-Fords Terror Wilderness	656,000
Warren Island Wilderness	11,353
West Chichagof-Yakobi Wilderness	265,000
TOTAL ACREAGE	5,361,899*

*The final acreage of wilderness areas may vary from these figures as official boundary maps are completed and State and Native selection acreages are deleted from these totals.

The Chugach National Forest is currently developing it's land management plan. The designated Nellie Juan-College Fiord Wilderness Study includes 2,222,038 acres. The wilderness study is to be completed and recommendations made to Congress by December 2, 1983. In addition, 2.8 million acres are in a "further planning" category. These lands will be considered in the Chugach National Forest Land Management Plan for possible allocation to wilderness as well as other uses.

The 1964 Wilderness Act recognizes Wilderness as a distinct resource and defines it as follows: "A Wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have

been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

The Alaska Lands Act made Alaska Wilderness subject to the Wilderness Act of 1964, but added provisions which minimize change to existing uses of the land. Special emphasis is to be given to minimizing impacts on rural residents who live a subsistence lifestyle.

While the 1964 Wilderness Act has the flexibility to allow existing uses to continue in an area, the Alaska Lands Act specifically authorizes a number of uses in order to minimize impacts on current users of the land and to provide for facilities necessary for certain types of economic development in the area. These special provisions of the Alaska Lands Act are covered in Chapter V (Standards and Guidelines) of this plan. These provisions are in addition to existing wilderness policy. Any general restrictions placed on the public use of a wilderness would be done through the Forest Land Management Planning process.

The National Forest Wildernesses and Study Area are representative of a cross-section of landforms, flora, and fauna of Southeast Alaska and Prince William Sound. However, they do have many things in common from a management standpoint. For example, the lower elevations are typically hemlock-spruce forests with moderate brush, making hiking difficult except on maintained trails. Hence, human use of these areas is concentrated along the areas of convenient access. This is primarily the saltwater shorelines and lakes which are large enough for float planes to land on. A relatively few rivers are large enough for extended trips involving power boats, kayaks, or rafts.

Since the wildernesses includes only the National Forest lands above mean high tide, a long-term management concern will be the management and use of adjacent lands and waters. Most of the wildernesses have some private land within them -- a small percentage of total acreage, but sometimes occupying key development sites. Any development of inholdings will change the character and sense of isolation and solitude in the adjacent bay and upland areas. Tidelands are managed by the State of Alaska and compatible management is essential to maintain the wilderness character of these critical public-use areas. Finally, public use of saltwater travel routes which frequently incise wildernesses will gradually grow to change the character of the experience the public receives from the wilderness in the important saltwater shoreline areas.

The recent Alaskan Public Survey (Interagency 1979 survey of Alaska residents involving the importance of the State's natural resources) has pointed out the importance of wilderness environments to Alaska residents by ranking the twelve reasons why Alaskans come to or remain in the Region. Being close to a wilderness environment was rated first in Southeast, third in Southcentral and fourth in the Interior, in order of importance.

This same survey summarized the factors that would detract from enjoyment of favorite recreation sites in a wilderness visited for its sense of isolation and remoteness. Roughly 75 percent of respondents ranked new buildings, new roads, mine tailings, log storage and "more" recreationists as detractors to their favorite site. Aircraft, shipping traffic, and commercial fishing (boats and gear) ranked lower as detractors.

The survey also ranks appropriate uses in a wilderness environment as follows:

	Percent of Respondents saying that the use should be:		
Use	Generally Allowed	Strictly Regulated	Banned Altogether
Allowing float and ski planes to land	76%	20%	4%
Travel by smowmobile	30%	49%	20%
Travel by dirt bike	21%	45%	35%
Building fish hatcheries	64%	31%	5%
Building public cabins	57%	35%	8%
Building commercial lodges	19%	48%	33%

It should be noted that the above survey reflects opinions on wilderness environment and not necessarily legislated wilderness.

In addition to the lands which have been formally designated as wilderness by the Congress, many other areas will continue to provide de facto wilderness use opportunities. These include areas which have been allocated to amenity oriented management purposes (e.g. LUD II areas on the Tongass National Forest) and areas which have a low potential for developmental activities because of their natural characteristics (e.g. icefields, overly steep lands, areas lacking economic resources, etc.). Areas allocated for commodity production purposes will also continue to provide such opportunities until actual developmental activities commence.

Assumptions

1. The Chugach Forest Land Management Plan will recommend additional formal wilderness classifications.

2. A variety of facilities and uses (i.e., hunting, cabins, navigation aids, and trails) will continue to occur in the Region's newly classified wildernesses.

3. Alaska Lands Act wilderness-use policies represent a balance between competing national interest groups.

4. Wilderness will continue to be controversial since some interest groups will strive to expand the National Wilderness Preservation System in Alaska while others will attempt to declassify existing units.

5. Implementation of wilderness-use policies, as contained in the Alaska Lands Act, the Wilderness Act and other direction will continue to be controversial due to differing perceptions as to how wilderness should be managed.

6. As transportation systems are expanded or transportation costs are reduced, wilderness will be subject to increased use.

7. Due to the fact that wilderness has been designated, use will increase in those areas because of increased publicity.

8. In the long-run, as other portions of the forests are further developed, wilderness will become more important for primitive recreation opportunities, research, and other activities associated with relatively undisturbed natural areas.

CULTURAL RESOURCES

Introduction

Southcentral and Southeast Alaska are heir to the cultural influence of the Native American groups who resided there when Russian explorers and traders arrived along these coasts. As settlement and resource development progressed, the Russian and then American presence left its own influence.

There are about 1,500 known historic and prehistoric sites (cultural resources) in the Alaska Region. They include the remains of nearly 10,000 years of Native occupancy, as well as evidence of the European and American settlement of the last 250 years. The variety of these cultural resources is great: Native villages, camps, fish wiers, totem poles, and pertroglyphs; canneries, fur farms, mines, logging equipment, and remains of military activities illustrate only a few.

Situation Statement

Archeological investigation began in the Alaska Region in the mid-1930's, but has been conducted only sporadically since. Only recently has it been demonstrated that there are at least 10,000 years of prehistory in Southeast Alaska. Although historic and prehistoric sites are abundant, there has been little consistent effort on the part of the academic community to study the cultural record they preserve. This situation may improve as land status is resolved under the Alaska Native Claims Settlement Act and as Forest Service archeologists bring the potential for cultural resource research to the attention of archeologists in the private sector. The difficulty of locating many cultural resources and the high costs involved will continue to restrict archeological investigations.

Under the Alaska Native Claims Settlement Act, Native Regional corporations may select historic sites and cemetaries. To date, about 250 sites have been identified for selection.

Public interest in the Region's cultural resources is high. Museums and heritage centers featuring and interpreting artifacts and history experience high visitation rates during the tourist season, and local programs in history and archeology are well attended.

The current Regional cultural resource program emphasizes compliance with environmental and cultural resource statutes and regulations by identifying (through literature research and field examination) and protecting the resource in advance of ground disturbing activities. Cultural resources are evaluated for eligibility for the National Register of Historic Places when disturbing activities may have an effect on them. There are presently eight Forest Service sites located on the National Register; three others have been determined eligible by the Keeper of the National Register.

Interpretation of specific cultural resources has received minimal emphasis until recently, recognizing the difficulty in monitoring and protecting sites far removed from population centers and transportation routes. The recent inception of a Regional cultural resource publication series, a vehicle for publicly disseminating archeological and historic information, is a major step for changing the situation. There is a need for development of cooperative protection and management agreements with State, Native, and other private owners of cultural resources as a major step in guarding against theft, vandalism, and other unauthorized disturbances to the Region's cultural resources.

Assumptions

1. Relatively few of the cultural resources have as yet been discovered.

2. Public interest in cultural resources will increase.

3. Mining, timber harvest and other land management activities which have potential to disturb or destroy cultural resources will increase.

4. In the absence of countermeasures, vandalism to cultural resources will increase.

5. There will be an increase in requests for cultural resource management assistance from the private sector.

TRANSPORTATION

Introduction

The Forest Service plans, designs, and constructs transportation systems to support various resource activities and to provide access for management, use, and protection on National Forest lands. The State of Alaska has primary responsibility for planning, project development, design, and construction of regional highways and air facilities as delegated by the Federal Highway Administration and the Federal Aviation Administration. The primary purpose of State highway systems is to provide for the movement of people and materials from one community to another, regardless of land and resource allocations, while the Forest Service directs its efforts toward development of resource-related transportation systems. Proposals for development of other major arterial highway systems may also come from other sources.

Long-term transportation planning involves consecutive developments that improve a transportation system over time. The system must include a cost effective combination of available transportation modes. Costs include those that are social or environmental as well as those that are traditionally economic. Long-term planning must be sufficiently flexible to accommodate changing community needs, changing trends in land uses and values, and rapid evolution in the technological state-of-the-art.

Situation Statement

Resource-oriented activities such as timber management, wildlife habitat improvement, recreation, commercial fish harvest and processing, and fish and game management all require some form of access. Management of timber resources may require several modes of transportation that result in extensive road networks, different log yarding systems, and a determination of that water transport method most compatible with all resources. Roads presently serve most of the developed recreational campgrounds, picnic areas, and visitor centers; visitors to remote recreation cabins gain entry primarily by float plane, although some cabins are accessible by boat. The waterways and thousands of miles of shoreline of coastal Alaska also provide small boat access to millions of acres of dispersed recreation areas. Hiking trails are in greatest demand adjacent to communities, although minimal trail maintenance, in some cases, greatly reduces their use. In some cutover areas, old logging roads provide access to certain types of recreation activity; in most cases, however, the difficulties associated with getting vehicles to remote road networks restricts road use to foot traffic and an occasional trail bike.

Prospecting and the development and processing of mineral resources can require development and use of various methods of transportation, including aerial trams.

High transportation development costs in Alaska require that timber be removed in large quantities during the first cutting entry in order to pay for road construction. Road construction prior to logging could provide more flexibility for selecting silvicultural methods that meet resource objectives more effectively. In addition, many areas that are presently economically marginal could be made accessible, thus providing opportunities to increase timber production or reduce pressures on currently accessible drainages.

Transportation systems must be planned in conjunction with overall land management plans in order to coordinate differing resource objectives. Land-based segments of the system are usually constructed in connection with project plans such as individual timber sales. Consideration of impacts on other resources, economics, and future maintenance are a part of the planning process.

Marine transportation corridors, well defined in Southeast Alaska, follow the fiords, straits, and passages that penetrate the rugged mountains of the mainland and separate the large islands of the Region. The scarcity of natural land transportation corridors makes marine corridors exceptionally valuable resources. Almost without exception, land corridors are narrow and confined to the coastal zone and river valleys.

Prospects for community development and land access have met with varying degrees of enthusiasm. Responses range from strong opposition to any road access to legislative petitions encouraging highway construction. Current human needs and lifestyles require some form of transportation between outlying communities and the rest of the world. Development and use of Forest resources to enhance or strengthen an economic base for Alaskan communities requires some form of transportation. Various transportation alternatives must be critically examined and must involve community desires.

The Forest Service has cooperated with various State agencies in planning transportation facitilities. The Alaska Department of Transportation and Public Facilities coordinates planning efforts of State agencies responsible for air, land, and water transportation facilities and services. The Forest Service, as a principal land manager in Alaska, will participate in the State's regional transportation planning process. The comprehensive plans will project overall system needs for Southeast Alaska and help to identify places where cooperative State/Forest Service efforts in construction and maintenance of transportation facilities will meet joint objectives.

The Forest Service is cooperating with the Alaska Power Administration and the Army Corps of Engineers to develop a plan for hydroelectric development. Regional corridors may be identified and utilized for transportation, power transmission, and communication purposes. In Southeast Alaska, air and marine transportation are the principal modes of movement for people and resources at present. With few exceptions, power is produced locally, and most communication is effected by microwave transmission. There is, however, a growing public demand for development of regional land corridors.

In addition to road, air, and port facilities directly associated with the management of Forest resources, the Forest Service has responsibility to participate in planning, project development, design, and construction of regional highways, air, and port facilities constructed on land managed by the Forest Service. Such facilities, although not primarily dedicated to land management, will, to some extent, serve this function. Their impacts upon other resources, economics, and future maintenance must be given full consideration.

Assumptions

1. Recent exploratory work indicates that transportation facilities associated with mineral development can be expected to increase.

2. Utilization of a natural land corridors for transportation development will conflict to some degree with other resources, including key fish or wildlife habitats, wilderness, and backcountry recreation.

3. The mere existence of a road or road network tends to produce a ripple effect that generates demand for uses other than those originally intended. Fulfilling such demands can lead to greater secondary and cumulative economic and environmental impacts than those caused by the initial road development.

4. The need for roads, trails, airports, and ferry terminals will grow in proportion to increased populations and resource development and use.

5. Expanded and intensified recreation activities will increase use of existing transportation systems.

6. Regardless of the method of logging, roads will continue to play a role in the harvest and removal of timber.

7. Demand for trails will continue to increase.

8. Recreational boating will continue to increase. Demand for anchorages, mooring buoys or floats, and shore facilities will increase accordingly.

9. Transportation corridor development may be critical to the economic and social well-being of Southeast Alaska.

10. Population will continue to grow and exert increasing demand for transporting passengers and freight using the land, sea, and air modes between communities throughout the Region.

11. The development of natural corridors for transportation facilities will impact other resources in the area.

12. Air and marine transportation modes will predominate during the foreseeable future.

FACILITIES

Introduction

In response to internal needs supported by a General Management Review, the Alaska Region has developed a 30-year facilities plan. The effort centered on individual Forest and Area plans, synthesized into a Region-wide document. This document is the Alaska Region Thirty-Year Facility Needs Report.

Situation Statement

The Forest Service presently operates administrative sites in over 25 locations in Southcentral and Southeast Alaska. These locations range from the centralized Regional Office, located in Juneau, to isolated work centers situated throughout the various National Forests. All of these adminstrative site locations are manned on a year-round basis and require certain specific maintenance and operational procedures to remain functional. Besides administrative sites, the Forests maintain approximately 200 public recreation cabins scattered throughout the Region.

Two visitor centers are maintained by the Forest Service (Portage, and Mendenhall Glacier).

In support of all these sites, numerous support facilities are required. These support facilities would be boat/float plane docks, water and sewage treatment plants, and in certain remote locations, power generation buildings. Many of the buildings occupied by the Forest Service in the region are either over-aged wooden structures with numerous facility deficiencies or temporary mobile homes pressed into administrative use. Expanding requirements for timber have increased administrative staffs and have greatly overloaded existing facilities.

In response to internal needs, the Alaska Region has developed the Thirty-Year Facility Needs Report, to assist the General Management Review in solving the lack of administrative and operational space requirements. The plan specifically addressed individual Forest and Area requirements. This document is the Region's first attempt to bring together all of the facility requirements and to address up-year needs to provide minimal administrative and operational building requirements.

The Thirty-year Facility Needs Report covers a period from 1980 to 2010. A specific needs assessment has been developed covering the immediate 10-year period. Overall assignment has been made on the "complete system" concept, examining not only buildings, but also support facilities and services. Since the Forest Service operates extensively in rural areas, development in those areas will continue to be a vital concern to the Region. Concern for incorporation of nonfossil energy sources and innovative construction technology, suitable for the Alaskan climate, have been addressed in this plan. It is envisioned that both will be utilized in future site developments.

Assumptions

1. Administrative structures, and preselected facility sites will remain essentially static.

2. All local, State and Federal requirements for facility development will be adhered to.

3. Both administrative and living facilities will be at a standard to meet the needs of the Forest Service and assist in providing a suitable environment in which to conduct business.

4. Administrative sites will be located as close as economically feasible to work sites, to reduce extensive flying time and reduce employee and family concerns over the distances and hazards between site and work areas.

LANDS

Introduction

In the context of National Forest management, the term "lands" includes land ownership, land adjustments, partial interest, grants and acquisitions, and land occupancy authorizations. Because National Forest ownership has been relatively stable, past land programs have been limited in scope and directed primarily to occupancy authorizations for various uses. This situation is changing rapidly and program emphasis is changing accordingly. Old programs relating to occupancy remain, but new programs in land adjustment must be developed to accommodate new public and private needs.

Situation Statement

The Alaska Native Claims Settlement Act has significantly altered land ownership patterns on National Forest lands. By July 1, 1980, 405,223 acres of Tongass National Forest land and 314,110 acres of Chugach National Forest land had been conveyed to Native village and Regional corporations. More than 280,000 acres, to be selected from National Forest System lands, has yet to be conveyed to fulfill Native land entitlement of more than one million acres as authorized by the Alaska Native Claims Settlement Act.

In addition, Congress, with the enactment of the Alaska Lands Act, relaxed the following restrictions of the Alaska Native Claims Settlement Act on selection from the Chugach National Forest by Chugach Natives, Inc. Specifically Section 1428 allows additional Chugach Natives, Inc. selections from the Chugach National Forest of approximately 47,300 acres. Section 1429, allows additional selection from the Forest of approximately 33,167 acres.

Section 1430 establishes a one-year study to ". . . identify in-region and out-of-region lands, including lands within the Chugach National Forest and State lands but excluding lands in private ownership, which can be made available to Chugach Natives, Inc., in satisfaction of its regional land entitlement pursuant to Section 12(c) of the Alaska Native Claims Settlement Act . . . ." Chugach Natives, Inc. entitlement under Section 12(c) of the Alaska Native Claims Settlement Act is approximately 344,303 acres. The Section 1430 study also makes the approximately 33,167 acres to be selected under Section 1429 of the Act, subject to the recommendations of the Section 1430 study.

State of Alaska selection under the Statehood Act is another major factor in the changing land ownership patterns on National Forest Systems lands. The State has selected about 240,000 acres to date. They have until 1990 to select an additional 160,000 acres to fulfill the entitlement of 400,000 acres authorized by the Statehood Act. This new pattern means that management programs of all landowners could be influenced by activities on adjacent lands. This situation suggests that a land exchange program designed to consolidate ownership into manageable units would be useful. This program would be voluntary; no party would be involved unless an exchange was deemed beneficial to both parties. Since the Forest Service will remain principal land manager within National Forest boundaries, a land adjustment program should be developed in the immediate future, and expanded as public needs are identified and exchange opportunities become apparent.

National Forest lands are used under special use permit authority for a wide variety of special purposes such as roads, power sites, power lines, resorts, winter sports facilities, industrial sites, communications sites and private cabins and residences.

Many of the privately owned cabins and residences, as well as a few of the other facilities, are on land selected by the State. The State assumes administration of the special use permits when the lands are conveyed to them.

Resort permits are generally issued in accordance with public need for such facilities. Outfitter and Guide permits are issued for all commercial outfitting operations, including services for accommodating guests, transporting persons, and providing supplies. Special use permits are issued for these purposes on an annual basis, or by a term permit of tenure appropriate for the particular use to a maximum of 30 years. Fees are based on fair market value or on a proportionate share of profits.

While State and Native lands will be available for many uses historically offered on National Forest lands, it is anticipated that as activities on these private lands increase, the need for use and occupancy of adjacent National Forest land will increase. Occupancy of National Forest land is not authorized for speculative or purely profit-oriented purposes, or for uses that conflict with approved land management plans or land classifications.

Assumptions

1. Ownership patterns will continue to change until all lands selected under Alaska Native Claims Settlement Act and the Statehood Act are conveyed.

2. Public needs for National Forest lands will continue to be accomodated through the Special Use Permit system for those uses that cannot be accommodated on private lands.

3. A voluntary land exchange and adjustment program will be initiated to provide more easily managed land patterns for both National Forest and private owners.

4. As a result of the intermingled land patterns, the need to obtain and grant right-of-way for public/private roads and trails will increase.

FOREST PEST MANAGEMENT

Situation Statement

Timber resource losses in Alaska due to insects and disease are substantial. The Forest Service in Alaska is still at the stage of obtaining accurate surveys and evaluations in order to assess the loss and provide technical management assistance to the State, other Federal agencies, and private landowners.

Forest insects and diseases in Southeast Alaska cause loss of tree growth or volume, deformity, top-kill, or actual tree mortality. Insect outbreaks are less frequent than in southern conifer forests. But large areas are involved in the outbreaks that do occur, and relatively few insect species cause these outbreaks.

Historically, old growth forests in Southeast Alaska have been part of a healthy ecosystem capable of replenishing itself following disturbances caused by insects or diseases. In second growth forest, however, management of insects or diseases may differ. Forest pests may be introduced into the stand by the management practices adopted. Indigenous pest populations may not be acceptable within the scope of resource demands.

Establishment of a well-coordinated and integrated pest management program between Department of Agriculture agencies and the State of Alaska is essential. The State is in the process of promoting a strong agricultural development program. At least 50,000 acres per year are expected to come into agricultural production in the private sector. Agricultural development is taking place in the Interior and Southcentral areas of Alaska. Up to 50 percent of this development could be in farm woodlots. The need to incorporate weather, crop data, forest data, trees, pests, shrubs, and livestock data into an integrated pest management plan is self-evident. It will be necessary to identify, through surveys, the biological control agents acting against forest pests in these areas.

The Forest Service assists in the selection of pesticides to insure effectiveness against target organisms, and to insure the relative safety of nontarget species. The need to conduct pesticide trials for a variety of pests will be evident in forestry on private, State, and Federal lands.

Alternative approaches to insect and disease management vary in effectiveness, cost, and environmental safety. The least expensive approach in the long-run may be to anticipate potential problems and attempt to forestall them through silvicultural manipulations and the use of biological controls. This approach will reduce, but may not completely eliminate, the need for expensive direct suppression measures such as pesticide application.

The integrated pest management (IPM) approach evaluates all aspects of a pest-host system to provide resources managers information on the impact of unregulated pest populations on various resource values, alternative regulatory tactics and strategies and benefit/costs estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system. Strategies consist of a combination of tactics such as stand improvement plus related use of pesticides. The overriding principle in the choice of strategy is that it is ecologically compatible or acceptable.

Until IPM technology is refined and as management of various forest resources intensify, pesticide use will continue to be considered for a wide variety of pest problems.

Assumption

As forest management intensifies, there will be increased concern with respect to damage and losses due to insects and diseases.

PROTECTION

Introduction

A significant task facing Forest managers is that of protecting the public from danger and public property from willful danage. Not only must the land and its resources be protected from careless abuses by Forest users, but most visitors to the National Forests look to the Forest Service to provide protection frm a variety of dangers. In addition, in many communities the Forest Service is veiwed by the public as being knowledgeable about, and capable of, rescue operations during emergencies.

Through the State and Private Forestry Program, the forest Service is also involved in rural fire protection, forest pest management, and the State's avalanche warning system.

Situation Statement

The Forest Service expects Forest users and visitors to provide for their own welfare and safety outside of developed areas of the forests. Because of the vast areas and remoteness of much of the forests, accurate statistical information is not available on the number of user/visitor accidents. Most visitors to National Forests expect the Forest Service to provide protection from a variety of risks and dangers. These involve direct measures such as providing campgrounds and cabins for shelter, firewood and other amenities, and taking action to reduce bear-human conflicts. The public also expects the Forest Service to provide information and warnings regarding the risks and dangers involved with different recreational experiences.

Incidents of crime, especially theft, trespass and vandalism are increasing rapidly. While detailed statistical information is not compiled for the Region at this time, these types of activities are increasing. Losses to the government run into the tens of thousands of dollars annually. Until recently, law enforcement activities were handled by the Alaska State Troopers under cooperative agreements. The Alaska State Troopers still play an important role in enforcement. Today, Federal laws on National Forest lands are also being enforced by trained Forest Service law enforcement personnel.

Programs of public information and education are being used to inform forest users/visitors of the potential hazards and dangers and to attempt to reduce acts of vandalism, especially unintentional damage to sensitive resources.

The Alaska State Troopers and the U.S. Coast Guard have legal responsibilities for seach and rescue operations. Forest Service personnel often assist, at the request of the responsible agencies, because they are often more familiar with many of the remote areas of Southeast and Southcentral Alaska. In emergency situations, where there is imminent threat to life or property, Forest Service personnel and resources are available to provide whatever action is necessary.

The State of Alaska is in the process of taking over wildland fire control responsibility from the U.S. Bureau of Land Management in most of Southcentral and Interior Alaska where resource losses and property losses can easily happen. By 1985 the State will be protecting 75 million acres of land from damage by wildfire. This means being able to effectively combat 300 to 600 fire starts annually, many of them in remote and inaccessible country requiring air transportation and highly trained air support personnel. With assistance from the Forest Service in the form of technology transfer and financing, the State will be able to plan and implement their fire management responsibilities in an efficient manner. This will reduce natural resources loss to a minimum and at the same time will protect Alaska residents and visitors.

In addition to the protection of rural lands and resources, the Forest Service and the State Forester assist rural communities with the protection of lives and homes. Fire mortality rates for the State of Alaska are more than twice the national average. Fire mortality rates for Alaska Native people residing in rural villages are about four times the national average. Alaska's per capita fire damage loss is more than $100 per year, compared to a national average of less than $20.

Although the risk of wildfire is currently minimal in Southeast Alaska due to the moist maritime climatic conditions, hazards and risks are expected to become greater as use and occurence increase on these forested lands. Consequently, fire management considerations should be duly addressed in management plans for the National Forests adjacent to State and private lands.

The State of Alaska has snow avalanche hazards and conditions that have resulted in the highest number of snow avalanche fatalities in the Nation during the decade of the 1970's. In addition, the potential for extreme property damage is critical throughout the winter months.

In August, 1979, the Forest Service entered into a Cooperative Work Agreement with eight other State, municipal, and Federal agencies to develop and implement a State-wide snow avalanche warning system. The system also includes a summer fire weather forecasting service, providing year-long operation of a combined avalanche-fire weather forecast system located in Anchorage.

At the present time, because of its experience and expertise in this specialiszed activity, the Forest Service has the lead role in operation and administration of the system. During 1980, a State law was enacted which requires the State to participate in development and implementation of the State-wide avalanche warning system and related avalanche control activities. State Departments of Public Safety, Transportation and Public Facilities, and Natural Resources are involved. A five-year plan of development is aimed toward a full-scope operation for the winter of 1984-1985, at which time the State is expected to have the lead responsiblity for management.

Assumptions

1. As public use of the National Forests increases, so will the number of use-related accidents.

2. Forest users expect a reasonable level of protection for themselves and their property while engaged in activities on National Forest lands.

3. Acts of violence and vandalism can be expected to increase along with growing public use.

4. The public will continue to look upon the Forest Service as having the knowledge and expertise to cope with emergency situations arising on or adjacent to Forest Service land.

5. Failure to provide financial and technical assistance to the State for rural fire prevention and control will increase loss of lives, homes, and natural resources as the State prepares to protect rural lands previously under the protection of the Federal Government by the Bureau of Land Management.

6. The State Department of Public Safety will program necessary budget requests to enable continued development and operation of the Alaska Avalanche Warning System. By 1985 the State is expected to finance approximately two-thirds of the total cooperative venture which benefits a number of State, Federal, and municipal agencies.

STATE AND PRIVATE FORESTRY

Introduction

The Forest Service, through its State and Private Forestry programs (S&PF), offers financial, technical, and related assistance to State forestry organizations and others in support of improved forest resource management, protection, and planning. Forest Service programs include:

- rural forestry assistance on non-Federal lands

- tree insect and disease management on all lands

- urban forestry assistance in

- rural fire prevention and control on non-Federal forest lands and other rural lands

- management and planning assistance to State Foresters or equivalent State officials

- assistance to insure the new forestry technology and research results are promptly made available and implemented

State and Private Forestry also includes certain programs funded by other Federal agencies but administered by Forest Service. These are:

- cost sharing for reforestation and timber stand improvement (Agricultural Stabilization and Conservation Service)

- watershed planning and restoration and flood prevention (Soil Conservation Service)

- rural and community fire protection (Farmers Home Administration)

State forestry agencies are the principal delivery system for State and Private Forestry cooperative forestry programs. The Cooperative Forestry Assistance Act (P.L. 95-313) is the basic legislation authorizing the Secretary of Agriculture to cooperate with and assist the State in implementing Federal programs affecting non-Federal forest lands.

The State and Private Forestry program displayed in the Regional Plan is based upon State data and information provided for the program alternatives in the 1980 RPA and established funding allocation procedures developed in cooperation with the National Association of State Foresters.

In the future, State Forest Resources Plans developed by the State will provide the basic data and information for State and Private Forestry aspects of Forest Service planning. The target date of completing these State Plans is in 1983. Thus the 50 states, like the National Forests, will have better information for the 1985 RPA Program update which will consider public issues, management concerns, and resource opportunities.

Situation Statement

The current S&PF program displayed in the Regional Plan is based upon State data and information provided for in the 1980 Resources Planning Act (RPA) program and established funding allocation procedures developed in cooperation with the National Association of State Foresters.

Changing ownership patterns of lands in Alaska are producing significant effects upon natural resource management. Passage of the 1959 Statehood Act and 1971 Alaska Native Claims Settlement Act provided for the conveyance of approximately 148 million acres of land into State, local, and private ownerships. This has caused a dynamic shift of management responsibilities and objectives, from Federally controlled entities to the new landowners.

Resources of the forest lands selected for State and private ownership include lands which have remained relatively undeveloped. There has been little scientific study of the balance between the soils and the flora and fauna which occupy them. Most of the wood fiber harvested from Alaska's forests is sold on the export market. The opportunities and needs are almost unlimited at this point.

Nearly all the finished forest products utilized in Alaska are imported. There are numerous sawmills, however most of them produce either for export, house-logs, or green rough-sawn lumber of poor to fair quality.

Management philosophy and experience of the new landowners may vary considerably from that of the former Federal land managers. This is particularly true for the private landowners. One factor is already apparent; the new landowners will need time and considerable assistance in developing sound management practices. The availability of Federal and State forestry assistance programs and incentives will play a key role in development of these practices.

Existing Program Areas

A. Rural Fire Prevention and Control

Rural fire prevention and control is an important cooperative program with the State Forester. The Bureau of Land Management is continually transferring responsibility to the State for wildland fire protection in Southcentral and Interior Alaska, and the State is expanding its management capability to protect 75 million acres by 1985. With assistance from the Forest Service in information sharing and financing, the State will be better able to plan and implement their fire management responsibilities efficiently, and keep natural resource loss to a minimum.

In addition to protection of rural lands and resources, the Forest Service and the State Forester are also responsible for assisting rural communities in the protection of lives and homes.

Although wildfire occurence is infrequent in Southeast Alaska due to the moist maritime climate, hazards and risks are expected to increase as use and occupancy increase on forested lands, as more acres of mature timber is harvested.

B. Rural Forestry Assistance

The primary thrust of the Rural Forestry Assistance program in Alaska is training, technology transfer, and monetary support to the State Forester.

The current program emphasis by the State Forester has been education and training, timber sale preparation, harvesting assistance, and resource management planning assistance.

State and Private Forestry direct assistance has emphasized sawmill improvement and improved harvest and wood utilization programs, because the State lacks capabilities in this area. Other programs include training, resource management planning, techology transfer technical assistance, and resource utilization.

A paramount need exists for development of an extension forestry program through the University of Alaska and the USDA Cooperative Extension Service. This program would provide renewable resource management education to rural landowners.

Assumptions

1. Alaska Native corporations and other private landowners will seek to develop their forestry resources.

2. A majority of the timber harvested from private lands will be sold on the export market.

3. Alaska Native land selections include a large percentage of the highly productive forest lands which may be difficult to regenerate after harvest.

4. There will be a growing need to provide technical assistance and financial incentives to private forest landowners to manage their resources in a productive mode.

5. Oil prices will continue to rise and wood energy will become more significant in Alaska.

6. Interior forests will be primary sources of energy and building materials for subsistance use in isolated villages, thus reducing the need to import.

7. State and private landowners will become concerned for opportunities to develop and use resources other than timber from their lands. The greatest opportunities appear to be in recreation related resources and aquaculture.

C. Urban Forestry

The concept of urban forestry is relatively new in Alaska. However, nearly all urban areas in Alaska have forest settings or potential for open space or have greenways and parks. Few have developed urban forestry plans or have urban forester staffs.

The rapid expansion of Alaska's urban areas as noted in the Community and Human Well-being Sub-Account is contributing to a rapid deterioration of many of the values for which people move to Alaska. Planning is needed for the development and protection of the urban forest values.

D. Management and Planning Assistance; Technology Implementation

Programs under this element include assistance in organization management to the State and to the Native corporations and planning assistance to the State and to the large private forest landowners.

The current program in organization management assistance (OMA) has included innovative approaches to problem solving, decisionmaking, and organizing. There is also a lack of qualified resource people on the corporation staff to develop these plans.

State and Private Forestry is cooperating with the State Forester to develop a State Forest Resource Plan. Funding as well as data, is provided towards this effort. A five-year resources program for State Forester activities will be a part of the plan. This will include those activities under the Cooperative Forestry Assistance Act. The plan will also become the source of RPA update information.

In addition, the Alaska Lands Act provides for cooperative land-use plans with Native landowners.

Assumptions

1. Activities which implement provisions in the Alaska Lands Act with Native landowners will increase.

2. In the Interior, a gradual increase in interest in forest management will result in more training and planning assistance.

E. Cooperative Programs with Other Agencies

The Susitna River Basin Study is ongoing. The Tanana is the next candidate and a possibility exists that the Copper River will be put on line.

Another concern involves new conditions in Alaska which have resulted in the highest number of avalanche fatalities in the Nation during the 1970's.

It is in the public interest to establish and operate a warning system for the protection of life and property throughout the State. Fire weather forecasting is rapidly becoming important as rural development increases and fire occurence increases. The two needs provide an opportunity for year-round forecasting programs.

Because of its experience in these specialized activities, the Forest Service has the lead role in planning and development of a snow avalanche and fire weather system. During 1980, a State law was enacted requiring the State to participate in development and implementation of the State-wide avalanche warning system and related avalanche control activities. State Departments of Public Safety, Transportation, and Natural Resources are involved in benefiting agencies. A five-year development plan is aimed toward full-scale operation for the winter of 1984-1985, at which time the State is expected to assume principal responsibility for management.

Assumptions

1. The State Department of Public Safety will program budget requests to enable continued development and operation of the Alaska Avalanche and Fire Weather Forecast System. By 1985 the State is expected to finance approximately two-thirds of the cooperative venture.

F. Forest Pest Management

The management situation for this program is described on page 67 of this chapter. Standards and guidelines for pest management on the Tongass and Chugach National Forests are presented in Chapter V.

Existing Policies

The following policies were developed by the Forest Service with assistance from the State of Alaska, Federal agencies, local governments, and private landowners during the development of the Southeast Alaska Area Guide. Slightly modified to bring them up-to-date and to apply throughout the State, they represent current management direction to State and Private Forestry programs in Alaska.

1. Work with other forest owners, through the Forest Supervisors and the land management planning process, toward a well-coordinated land management pattern in Alaska, in which activities on different ownerships complement each other to a large degree. An example is the development of well-conceived access easements through land of mixed ownership.

2. Provide opportunities for Native, other private, State, and local government interests to involve themselves in the land management planning process and, as requested, provide technical assistance to them in land management planning, environmental education, and other State and Private Forestry programs.

3. Assist the State Forester in developing and implementing State Forest Resource Plan for the protection of resources during operations such as timber harvest, road construction, and fire suppression. Practices should protect fish and wildlife habitat, water resources, and land productivity.

4. Work with the State Forester to encourage participation in cooperative forestry activities among private landowners and industry.

5. Through the Forestry Incentives Program, Rural Conservation and Development Program, and other similar cooperative measures, provide financial support and technical assistance to non-Federal landowners to promote improved management, protection, harvest and marketing of timber resources in Alaska.

6. Keep landowners informed of new developments in forest management research through a continuing program of information and education.

7. Make assistance available to other landowners in the identification and protection of important non-timber resource values.

8. Help others involved with resource management to develop a public awareness of the need to protect rare and endangered species of wildlife and plants.

9. Work with State agencies and landowners to assist in the control of possible non-point source water pollution resulting from forest land management operations and activities.

10. Provide technical assistance to owners and managers of non-National Forest lands in matters relating to forest insect and disease management and in use of chemical pesticides.

11. Promote rural area development through active participation in the Alaska Rural Development Council.

12. Assist in developing cooperative fire protection agreements with communities and Native corporations and in providing adequate fire protection for communities.

13. Provide for those Federal cooperative assistance programs that offer an equal opportunity without regard to race, religion, creed, color, sex, or National origin.

RESEARCH PROGRAMS

Situation Statement

The objective of the Forest Service research program is to provide the scientific basis for the management and use of the Nation's renewable natural resources. Research is conducted through a network of eight regional Forest Experiment Stations and the Forest Products Laboratory at Madison, Wisconsin. Field studies and laboratory research are conducted at 81 locations throughout the United States, Puerto Rico, and the Pacific Trust Islands. The basic unit for conducting research within a Station is the research work unit. Each unit operates under a work unit description (charter) for a period of up to 5 years. The charter may be revised or terminated prior to that time if research priorities shift.

National research planning is intended to satisfy several needs. First, it provides a guide for forestry research planning in the Forest Service, Science and Education Administration (SEA), and the participating forestry schools as required by Title XIV of the Food and Agricultural Act of 1977. Second, it provides the research portion of the RPA program. And third, it provides a guide for coordinated annual program development among Forest Service, Cooperative Research of SEA, the university community, and others.

Research programs are planned jointly with the Nation's 61 forestry schools to promote more efficient use of research talents and facilities. The Forest Service, in conjunction with the forestry schools and Cooperative Research of SEA, conducted several regional and a national research planning sessions during 1977 and 1978 to identify research needs. This effort, which involved more than 1,000 research users, led to the publication of both national and regional research plans. These plans, resulting from USDA's research planning system, formed the basis for developing the 1980 RPA research program alternatives.

For RPA purposes, the following criteria were used to evaluate the RPA research alternatives:

- Responsive to needs for which technology is inadequate;
- Contributes to increased national productivity;
- Responsible to national policies, particularly those outlined by the Administration and Congress;
- Relates to changes in demand for technology, but recognizes that the course of research should not shift drastically from historical trends.

In the 1980 Recommended RPA Program, research priorities were placed on:

- Improving wood utilization;

- Developing more intensive forest management practices to increase the Nation's timber supply and to provide biomass for energy;

- Providing new knowledge to deal with current and anticipated environmental issues such as range, arid land, wildlife management, and tropical forestry;

- Increasing the land manager's stewardship capability in areas such as protection and pollution control;

- Resolving problems identified through Regional and Forest planning.

The present and proposed research program of the Pacific Northwest Forest and Range Experiment Station for Alaska is described below. Portions of research programs by other Forest Experiment Stations and universities relevant to this plan are also highlighted. Additional information is available from these organizations.

Future research planning will continue to be conducted under the auspices of Title XIV and the Renewable Resources Planning Act. Research needs identified through the State, Forest, and Regional Plans will be incorporated into future research planning.

Forest Research Programs in Alaska

Management practices within the forest ecosystems of Alaska must recognize the vital need to protect the forest and associated resources. The Forest Service research organization has responded to this need by developing programs that include the study of associated resources such as fisheries, wildlife, soil, water, timber, and recreation. Much of the forest research in Alaska is done by Forest Service research laboratories in Fairbanks, Anchorage, Juneau, and Seattle, Washington. Research by these field units of the Pacific Northwest Forest and Range Experiment Station, headquartered in Portland, Oregon, is done in cooperation with various State and Federal groups. PNW Station's work is supplemented by research carried out by the Forest Products Laboratory, other Forest Service Experiment Stations, universities, and other agencies within and outside Alaska.

1. PNW Research at Juneau. Early research begun at Juneau in 1924 focused on timber yields, forest nutrition, and reforestation methods. The advent of large-scale timber harvests and new pulp mills brought expanded research efforts which emphasized study of natural reforestation after large-scale clearcutting, and effects of such logging on aquatic habitats critical to anadromous fish. The strengthened program of work at Juneau now involves five principal research areas.

a. Alternative silvicultural practices. Silvicultural prescriptions and improved timber harvesting methods are needed to optimize production of wood products--as well as for stream protection, soil and site protection, esthetics, wildlife, and other considerations. Guidelines are being prepared to cope with problem regeneration areas and sites that are damaged by wind storms.

b. Wildlife habitat. The habitat requirements of many species of game and non-game animals need to be known to assess the effects on habitat of such activities as timber harvesting. Some activities that are destructive to habitat if misapplied may have negligible effects if properly applied. Certain practices have the potential for improving habitat.

c. Fish habitat. Studies are underway to better define the freshwater habitat requirements of anadromous fish. This information will assist land managers in planning timber harvesting and roadbuilding so that damage to the habitat can be reduced or prevented. Other studies involve analyses of spawning habitat conditions, the effects of low temperatures on fish embryo development and survival, and a method to measure intergravel waterflows in spawning beds. Development of strategies and techniques to protect and enhance the habitats of anadromous fish is an integral element in this research effort.

d. Slope stability. Soil mass movements generated by logging and forest road construction frequently occur in Southeast Alaska. They also occur in areas that have not been disturbed. As timber harvesting continues to expand into increasingly unstable slopes, we need to refine our ability to identify unstable soils and predict effects on downslope resources following debris avalanches and other mass movements. Hazard ratings are being developed for each soil type.

e. Insects and diseases. Insects and diseases are being studied to learn their effects on both oldgrowth and young stands of spruce and hemlock trees. From this research, guidelines will be developed for preventing or reducing damage by destructive insects and diseases. Work is also underway to enhance the growth and development of spruce seedlings by innoculating them with beneficial fungi.

2. Research at Fairbanks. Scientists at Fairbanks began studies of Alaska's interior forests, or taiga, in 1957. The focus was on study of the reproduction of forest tree species, successional trends of interior forests, and the effects of fire on hydrology and nutrient cycling. These basic studies are continuing. The work at Fairbanks involves seven principal research areas with several individual studies being conducted in each area.

a. Classifying vegetation. Environmental and forest successional characteristics are being integrated in a classification system for the major types of vegetation in Interior Alaska. These studies will provide a sound hierarchical classification system for the types of vegetation in the Interior.

b. Fire effects. The results of studies on fire behavior and the effects of fire on taiga and tundra plant communities will be applied to resource management objectives. This research also provides specific information to develop guidelines for prescribed burning, to predict conditions that follow wildfires, and to develop models that will give information on the types of fuels which may be expected from various kinds of interior vegetation.

c. Regenerating vegetation. Strategies are being developed for regenerating and growing trees and shrubs in Interior Alaska. Within a few years, as a result of these studies, guidelines will be developed for regenerating genetically superior white spruce on the best growing sites. Guidelines will also be developed for prompt regeneration of hardwoods and silvicultural recommendations for managing hardwoods, white spruce, black spruce, and associated vegetation.

d. Insects. Forest insects are being studied to determine their effects on the regeneration of trees and shrubs on the taiga. From this research, guidelines will be developed for maintaining insect populations at levels that preclude them reaching levels that are damaging to forests and related resources.

e. Soils and water. This research at Fairbanks involves studies of the relationships of precipitation, runoff, and stream sedimentation in major vegetation types in undisturbed and managed conditions. From this research, guidelines will be developed so that resource managers can reduce erosion caused by land management practices in the subarctic. Guidelines will also be developed to help determine precipitation and runoff relationships on watersheds in several types of land use areas. Finally, the research will provide a body of knowledge about watershed management which will be incorporated in comprehensive guidelines for managing Alaska's interior forests and related rangelands.

f. Wildlife habitat. Habitat and carrying capacities of wildlife species are needed in order to insure that land management activities provide for healthy, stable populations. The habitat characteristics of wildlife will be examined with respect to the classification of vegetation units, forest succession, and regeneration and growing of trees and shrubs. Basic information on habitat requirements of various wildlife species can be used to manage wildlife habitats, or to manipulate habitats to manage a specific wildlife species.

g. Forest products utilization. The potential for using more of the interior region's timber supplies should be assessed. Available supplies, costs of production, and markets will have to be determined if a viable forest products industry is to be established in Interior Alaska. Feasibility analyses are underway as a prelude to forest resources development in the Interior.

3. Research at Anchorage. A forest research laboratory was established at Anchorage with the transfer of forest inventory work from Juneau. This research encompasses both coastal Alaska and the Interior; its scope has been broadened from the traditional forest inventory to evaluation of multiple renewable resources. The work at Anchorage now includes three principal areas of research.

a. Interior Alaska multi-resource assessment. Information is being gathered on the renewable resources of the major river basins of the Interior in a form suitable for estimating future levels of output under alternative resource management and use. In cooperation with major public land managing agencies, inventories are being conducted to provide complete assessments of individual and total resource situations. Kind and amount of use of renewable resources are surveyed. Improved inventory methods and data specifications are also receiving research attention.

b. Coastal Alaska resource analysis. Similar research is underway in Alaska's coastal areas to provide the information needed to effectively allocate the renewable resources of these lands to meet economic and social needs. Information needed and being collected includes amount, kind, condition, ownership, use, and location of renewable resources.

c. Economic analyses of timber resources. Research is underway to identify the physical and economic opportunities to increase outputs from renewable resources on forest and rangelands. Current resource conditions and outputs will be related to the physical potential of the resources to identify the factors responsible for the difference between the current and potential outputs. The feasibility of overcoming these will be evaluated in terms of social costs, benefits, and investments required to meet specific output goals.

4. Research at Seattle. PNW research units located outside Alaska which have broad regional emphasis also have significant continuing activity in two research areas in Alaska.

a. Recreation and esthetics. Interagency studies are underway which will provide a means for assessing a variety of resource planning and outdoor recreation policy alternatives through examination of key recreational, social, and economic components that may be affected by alternative land management actions. Comprehensive information will be provided on recreation use patterns and values and on esthetic and lifestyle values necessary for evaluating the consequences of alternative management programs for Alaska's resources.

b. Forest engineering. Steep, fragile slopes and requirements for soil and water protection pose special problems in harvesting Southeast Alaska's timber resources. Sensitive permafrost and soil conditions complicate harvests in the Interior. Improving a harvesting system capable of accessing these timber resources is the objective of research on evaluation of advanced logging systems able to yard with less road construction and reduced environmental impact.

5. Other Forest Service Research. Other units of PNW Station conduct research specific to Alaska's resource management needs which may be of a one-time or continuing nature. Units based in Portland, Oregon have been and will in the future be carrying out research to develop information needed in managing Southeast Alaska's rich timber resource. Product recovery studies will determine optimum utilization of both small and large trees--and the kinds of mills, equipment, and facilities needed to obtain best recovery. Investigations will establish salvagability and product recovery from trees blown down for various lengths of time. The Forest Products Laboratory at Madison, Wisconsin, provides specialized technical assistance in these and other utilization studies in Alaska.

Similarly, PNW's Portland-based economics and marketing research work has included Alaska. Cost/benefit analyses are essential for informed management of the timber and other land resources of Southeast Alaska. The costs, returns, and schedule of volume available from implementing various management practices such as thinning have not been identified. The characteristics of markets around the Pacific Rim need to be considered in relation to the end products of Alaska's timber industry, both to pinpoint opportunities and to identify trends that may affect the industry's feasibility.

6. Research by Non-Forest Service Groups. Closely coordinated with and complementing PNW Station research is work by a number of cooperating Federal and State agencies and universities. Prominent among these are work by National Marine Fisheries Service on anadromous fish habitat requirements and the University of Alaska's research on nutrient cycling in Interior Alaska forests, vegetation-treatment-substrate topography correlations on denuded lands, and various recreation-related studies.

7. Research Needs. Research underway by the scientists of the Forest Service and other agencies will provide information needed now and in the future by landuse planners and land managers. The current effort is insufficient, however, to provide the basis for fully evaluating and implementing resource use alternatives that must be considered and, perhaps, implemented in the short-term. A summary of research needs which require accelerated or new research efforts follows:

a. Basic characteristics and hydrologic responses of soil and streams to various timber harvest and other land use practices.

b. Habitat requirements of various species of birds, mammals, and fish and impacts of various resource management and use practices.

c. Silvicultural prescriptions and timber harvest methods for wood production, stream protection, soil and site protection, wildlife, recreation opportunities, esthetics, and other resource management considerations.

d. Factors influencing the dynamics of important insects and diseases, technologies for quantitatively evaluating resource impacts of these pests, and development of integrated pest management systems.

e. Effects of fire on ecosystem structure and function and ways to minimize undesirable effects of burning and fire suppression activities.

f. Integration of renewable resource inventories and demand assessments and development of more effective and reliable models and other tools for predicting future supply and demand, as a basis for decisions about land use and resource management for commodity and non-commodity outputs.

The Forest Service RPA research program planned for the future will address these Alaska research needs. The following table summarizes scientist years and dollar investments planned for 1985 and 1990 and provides a basis for comparison with the 1981 program.

RPA RESEARCH PROGRAM FOR ALASKA--PNW FOREST AND RANGE EXPERIMENT STATION

Scientist Years (SY) and Investments (Thousands of Dollars) 1/

RPA Element	1981 2/ SY	1981 2/ M$	1985 SY	1985 M$	1990 SY	1990 M$
Recreation Seattle, Anchorage	0.5	46	2.0	225	2.5	315
Wilderness Seattle	0	0	0.2	50	0.3	50
Range Fairbanks	0	0	0	0	1.0	125
Wildlife and Fish Juneau, Fairbanks	5.4	872	12.2	1,440	15.0	1,815
Timber Juneau, Fairbanks, Seattle	7.0	652	13.4	1,495	16.0	1,935
Water Juneau, Fairbanks	2.2	339	4.8	675	6.0	800
Protection Juneau, Fairbanks	4.9	546	6.1	620	9.7	1,135
Lands Anchorage	4.0	934	16.1	1,825	20.0	2,530
Soils Juneau, Fairbanks	1.0	155	1.7	235	3.0	400
SY Total	25.0		56.5		76.2	
M$ Total		3,544		6,565		9,105

1/ Constant 1978 dollars
2/ Based on actual appropriation

CHAPTER III - REGIONAL GOALS AND OBJECTIVES

The Resources Planning Act (RPA) Recommended Program provides overall National goals and targets for the USDA Forest Service. Direction applicable to the Alaska Region includes:

- principles and guidelines;
- general program direction for the National Forest System, State and Private Forestry and Forestry Research;
- goals established for the various resource elements;
- targets the Alaska Region should strive to achieve.

Within the framework of the RPA Recommended Program, regional goals have been developed for the Alaska Region to guide land and resource management on the National Forests.

National Forest System

Alaska National Forest programs protect and manage about 23 million acres of Federal forest and provide the American people with a wide variety of resources, among them fish and wildlife, timber, recreation, wilderness, forage, water, minerals, cultural, and historic resources.

The Recommended Program embodies what is judged to be a balanced and reasonable plan for managing this Nation's renewable resources for the foreseeable future. The Program is intended to provide many of our future renewable resource needs with consideration of relative benefits and costs.

The National Forests will continue to be managed under multiple use-sustained yield policies that seek optimum use of the land and its resources and assure a continuous supply of goods and services. Land and resource management plans will be developed as required by regulations (36 CFR 219) recently developed pursuant to the National Forest Management Act of 1976 (190 Stat. 2949; 16 USC 1601-1614).

Regional Targets

The RPA process set overall goals and objectives to guide Forest Service programs nationwide. National objectives are production targets which are divided among the nine Forest Service Regions.

The following table contains these targets for the Alaska Region projected through the year 2025 with specific targets planned through 1985. The targets through 1985 will be key decision criteria used to guide planning, implementation, and monitoring in the Region.

REGIONAL NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation Use Includes VIS	Thousand Recreation Visitor Days	1,300	1,700	1,900	2,200	2,500	2,600	2,800	3,500	4,200
Dispersed Recreation Use Includes Wildlife/Fish	Thousand Recreation Visitor Days	4,300	4,600	4,800	5,000	6,000	8,100	9,000	9,500	10,000
Trail Construction/ Reconstruction	Miles	27	28	28	29	30	31	32	33	34
Wilderness Management 1)	Thousand Acres	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9
Wildlife Habitat Improvement	Thousand Acre Equivalents	6	6	6	6	6	5	4	2	2
Anadromous Fish Improvement	Thousand Pounds	210	521	1,376	2,134	7,390	15,166	20,234	20,234	20,234
Programed Timber Sales Offerred 7)	Million Board Feet	475	466	460	460	460	460	460	460	460
Reforestation	Acres	2,150	2,170	2,170	2,170	2,144	2,100	2,100	2,100	2,100
Timber Stand Improvement 2)	Acres	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Meeting Water Quality Goals	Million Acre Feet	189	189	189	189	189	189	189	189	189
Mineral Leases and Permits	Operating Plans	190	205	225	245	255	275	320	335	350

1) Acres shown reflect Congressional designation of wilderness to the Tongass National Forest. Additional wilderness is under consideration on the Chugach National Forest.

2) Timber Stand Improvement (TSI) includes precommercial thinning and 1,300 to 1,600 acres of other TSI.

7) Volumes sold will be carefully monitored. Adjustments to the volume prepared and offerred from the Tongass NF will be made as needed to insure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

REGIONAL NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Human Resources Programs 3)	Enrollee Years	391	391	391	391	34	34	34	34	34
Fire Management Effectiveness Index	Dollars/ Thousand Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition	Acres	425	530	535	538	542	544	546	548	550
Road Construction and Reconstruction	Miles	10	11	2	8	6	6	2	2	2
Costs - NFS Operational	Million Dollars 4)	20.1	20.1	20.1	22.3	29.8	33.0	34.2	35.5	36.1
Capital Investments	Million Dollars	72.2	75.1	74.1	72.5	60.5	58.5	53.9	52.4	48.7
Backlog	Million Dollars	1.1	1.1	1.1	1.1	0.4	0.1	0	0	0
Total Appropriated Funds 5)	Million Dollars	92.3	95.2	94.2	94.8	90.3	91.5	88.1	87.9	84.8
Total Allocated Funds 6)	Million Dollars	8.3	8.3	8.3	8.3	0	0	0	0	0
Total National Forest Funds	Million Dollars	100.6	103.5	102.5	103.1	90.3	91.5	88.1	87.9	84.8

3) Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

4) All costs and returns are shown in constant 1978 dollars.

5) National Forest System appropriated funds include all Youth Conservation Corps and Cooperator Funds.

6) National Forest System allocated costs include Young Adult Conservation Corps and other Human Resources Programs, Land and Water Conservation, and other funds. Costs exclude payments to the State and Boroughs and Federal Highway Funds.

Projected State and Private Forestry Program Outputs,

Activities and Costs from the 1980 RPA Recommended Program

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL UNITS 1981	1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Coop. Tech. Assist. For Disp. Recreation	Thousand Acres	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.6
Coop. Tech. Assist. for Wild. Hab. Impr.	Thousand Acres	0.2	0.6	1.1	1.5	2.0	2.3	3.0	3.0	3.0	3.0
Coop. Tech. Assist. for Range Imp.	Thousand Acres	0.8	1.8	2.9	3.9	5.0	5.0	5.0	5.0	5.0	5.0
Reforestation (RFA, FIP, ACP)	Thousand Acres	0.4	0.5	0.6	1.6	1.7	2.9	5.7	6.4	7.0	7.4
Timber Stand Improvement (RFA, FIP, ACP)	Thousand Acres	0.2	0.4	0.7	0.9	1.3	1.3	1.3	1.6	1.8	1.9
Timber Prepared for Harvest	Million Cu. Ft. (MMCF)	0.01	0.02	0.05	0.08	0.11	0.11	0.11	0.11	0.11	0.11
Woodland Owners Assisted	Thousand Owners	0.8	1.3	1.9	2.4	3.0	2.8	2.7	2.7	2.7	2.7
Improved Util. of Wood	Million Cu. Ft. (MMCF	0.8	0.9	1.1	1.2	1.4	2.2	4.0	5.0	5.5	6.0
Insect & Disease Mgmt. Surveys & Tech. Assist.	Million Acres	26	32	46	57	67	67	73	75	75	75
Rural Community Fire Protection	Thousand Approved Applications	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Fire Loss on Protected Area	Thousand Acres Burned	152.6	158.7	169.0	189.2	170.1	170.1	170.1	170.1	170.1	170.1
Resources Mgmt. Planning	Million Acres	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.8	3.5	6.0
Coop T/A for Landowner Forest Mgmt. Plans	Thousand Acres	0.02	0.10	0.19	0.27	0.36	0.36	0.36	0.36	0.36	0.36
Cooperative T/A	Person Years	2.0	3.2	4.5	5.7	7.0	7.2	7.2	7.5	9.5	9.5
Total Appropriated 2/	Million Dollars	1.6	2.0	2.2	2.4	2.6	3.0	3.1	3.2	3.3	3.2
Allocate 3/	Million Dollars	0.1	0.4	0.4	0.6	0.7	0.9	1.4	1.5	1.5	1.5
Total S&PF	Million 1/ Dollars	1.7	2.4	2.6	3.0	3.3	3.9	4.5	4.7	4.8	4.7

1/ All costs are shown in constant 1978 dollars.

2/ Projected estimates of funds appropriated to the Forest Service for cooperative forestry assistance under P.L. 95-313.

3/ Projected estimates of funds appropriated to other USDA agencies for programs which receive assistance from the Forest Service and State forestry agencies, including (1) forestry practices under the Agricultural Conservation Program and the Forestry Incentives Program funded through the Agricultural Stabilization and Conservation Service: (2) Rural community fire protection funded through the Farmers Home Administration; and (3) funds allocated to the Forest Service by the Soil Conservation Service for the forestry aspects of watershed planning, flood prevention, river basin surveys, and resource conservation and development.

Resource Goals

Goals specific to the National Forest resources in the Alaska Region have been developed as an aid to policy implementation. These goals are organized by the series of resource elements identified in Chapter II to help the public and Forest Service managers understand and develop regional programs. (The resource elements are similar to the "accounts" used in the Southeast Alaska Area Guide.)

Human and Community Development

1. Secure an optimum allocation of National Forest resources to satisfy National, regional and local needs.

2. Manage the Tongass and Chugach National Forests to integrate both lifestyle options and well-being of southeast Alaska residents and communities with National goals and concerns.

3. Assist communities and residents of Southeast Alaska in meeting their diverse land and resource use needs.

4. Obtain a more thorough and comprehensive socioeconomic profile at the regional and local community levels within the planning area.

5. Expand opportunities on National Forest System lands to use available youth programs and to provide greater opportunities for employment by involving more Alaskans.

6. Develop programs for involvement of diverse citizens groups in National Forest activities. These programs will include volunteers to the National Forests, manpower and employment programs and others.

Soil

1. Manage the soil resource to minimize erosion and loss of soil productivity resulting from development activities.

2. Rehabilitate disturbed and eroded soils to restore productivity and reduce erosion.

Water

Maintain water quality in accordance with need and in conformance with all applicable legislation; restore the chemical, physical, and biological characteristics of degraded waters to conform with goals of land management plans and State water quality standards.

Fish

1. Maintain and enhance the capability of National Forest lands and water to produce and sustain the fisheries populations, species diversity, and distribution mutually desired by the Forest Service and the Alaska Department of Fish and Game (ADF&G) in response to public demand for subsistence, economic, and recreational uses.

2. Provide opportunities for the public to use and enjoy the fisheries resources present on National Forest lands.

3. Maintain and improve coordination and communication with all agencies, organizations, and institutions with responsibilities or interest in management of fisheries resources in the Region.

4. Strengthen the Fish Habitat Protection Program in Alaska.

5. Encourage fisheries research that focuses on resolving conflicts with other resource management programs and provides opportunities to enhance populations and habitat.

6. Improve the status of threatened and endangered species to a point where they no longer need the protection of listing in the Federal Register under the Endangered Species Act.

Wildlife

1. Improve the status of threatened and endangered species to a point where they no longer need the protection of listing in the Federal Register under the Endangered Species Act.

2. Maintain and enhance the capability of National Forest lands and water to produce and sustain the wildlife populations, species diversity, and distribution mutually desired by the Forest Service and the Alaska Department of Fish and Game in response to public demand.

2. Provide opportunities for the public to use and enjoy the wildlife and fisheries resources present on National Forest lands.

3. Develop and implement a Wildlife Habitat Relationship Program in Alaska.

4. Provide opportunities for the public to use and enjoy the wildlife and fisheries resources present on National Forest lands.

5. Maintain and improve coordination and communication with all agencies, organizations, and institutions with responsibilities or interest in management of wildlife resources in Alaska.

6. Encourage wildlife research that focuses on resolving conflicts with other resource management programs and provides opportunities to enhance populations and habitat.

Estuaries and Tidal Meadows

1. Meet the management goals for fish and fish habitat, and for wildlife and wildlife habitat, set forth in this plan and the Fores land management plans.

2. Meet or exceed Federal and State water quality standards.

3. Protect aesthetic and recreational values and uses.

4. Provide for greater fish and wildlife populations through substantial increase in habitat management, including, but not limited to, such projects as fishpass construction, stream clearing, and similar activities.

Timber

1. Provide, in accordance with the RPA Program, for the orderly development of forest wood products on commercial forest land in a manner consistent with demand, land capability, and protection of other resources, through planned sales, salvage, reforestation and stand improvement, and increased utilization.

2. Maintain the timber supply from the Tongass National Forest to dependent industry at a rate of four billion five hundred million board feet measure per decade, and monitor periodically to determine adequacy.

3. Modify existing timber sale contracts related to lands formally designated as wilderness by substituting, to the extent practicable, timber on other National Forest lands approximately equal in volume, species, grade, and accessibility for timber within wilderness units.

4. Develop and issue regulations that define eligibility of purchasers of National Forest materials in Alaska to obtain loans for acquisition of equipment, or implementation of new technologies which could lead to utilization of wood products that might otherwise be wasted.

5. Study opportunities to increase timber yields on National Forest lands in Alaska.

6. Assist private, State, and local government interests to develop a viable forest-based economy in Alaska that provides a wide range of employment opportunities for local residents.

7. Encourage and assist private, State and local government interests in efficient long-term use and improvement of their lands and renewable resources in a manner consistent with principles of sustained yield and multiple use.

Minerals and Geology

1. Integrate the exploration, development, and extraction of mineral and energy resources into forest management at all appropriate planning levels in order to facilitate development and insure protection of all other resource values.

2. Meet demands of the private and public sector for sand, gravel, and rock in a manner consistent with all policies governing management of forest resources.

3. Encourage private enterprise in the orderly economic development of domestic mineral resources; satisfy National security requirements and industrial and environmental needs as directed by laws and regulations applicable to the National Forests.

4. Minimize environmental impacts from mineral development.

5. Encourage and give priority to proposals relating to energy minerals.

Recreation

1. Increase the supply of outdoor recreation opportunities and services through programs that emphasize dispersed recreation.

2. Encourage development of available private land for provision of resorts, marinas, campgrounds, and other commercial public services.

3. Give priority to recreation facilities that encourage energy and economic efficiency, by making National Forest recreation sites more accessible to communities or service centers, or promote sites that are served by public transportation.

4. Increase fee collections for campgrounds, cabins, and other special accommodations or services in order to reduce competition with the private sector, and to recover more of the operation and maintenance costs.

5. Promote Forest Service cooperation with Federal, State, local, and private entities in order to avoid duplication of effort; insure that National Forest recreation opportunities complement recreation opportunities on State and private lands.

6. Provide visitor orientation on the safe use of National Forests, emphasizing energy conservation and environmental quality.

Wilderness

1. Implement wilderness management in a manner that minimizes impacts on users of the land, with special consideration for rural residents living a subsistence lifestyle.

2. Maintain an enduring system of high quality wilderness.

3. Complete the decision process on wilderness allocations on the Chugach National Forest through the Forest land management planning process.

Cultural Resources

1. Inventory and evaluate cultural resources for National Register of Historic Places eligibility within the 1995 deadline.

2. Manage cultural resources as a nonrenewable National Heritage for the public benefit, in a manner sensitive to concerns of Native groups and other affected groups.

Transportation

1. Develop a system of transportation modes that is most cost effective in meeting land and resource management goals and needs of the people.

2. Develop natural transportation corridors in a manner that effectively meets international, National, and Regional transportation needs while protecting other resource values and land use opportunities.

Lands

1. Allow uses and occupancies compatible with Forest Service policy, regulations, laws, and long-term public interest.

2. Place high priority on processing State and Native land selections.

3. Assure public access to National Forest lands is provided for in all land conveyances.

4. Identify and plan, on a priority basis for surveying, marking, and posting of National Forest, private land boundaries.

5. Provide a mechanism for coordinating land management planning between the National Forest and other Alaska landowners.

Protection

1. Provide for the safety and welfare of Forest visitors.

2. Encourage public compliance with rules and regulations through public information and education programs, cooperative agreements with local law enforcement agencies, and Forest Service law enforcement.

3. Protect Federal property and resources under Forest Service stewardship from acts of misuse, public disturbance, violence and vandalism.

Forest Pest Management

Reduce pest incidence to levels consistent with threatened resource values while adequately protecting non-target organisms from adverse effects.

Forest Planning Direction

All planning actions that affect management use and occupancy of National Forest System lands and waters must be consistent with the National Forest Management Act of 1976, as described in regulations related to Section 6 (36 CFR 219, Subpart A) and the National Environmental Policy Act.

The purposes of Forest planning include:

1. Providing of appropriate data and information for development of the RPA Assessment and Program.

2. Providing of direction, goals, and criteria for management required in response to public issues and management concerns at the local level.

3. Response to a range of goals and objectives for succeeding planning periods, based on assessed capability and suitability of the National Forests.

4. Providing of information and direction for the development of program and budget proposals.

Forests in the Alaska Region are developing Forest Plans, in accordance with 36 CFR 219, Subpart A, that meet the purposes mentioned above.

Integrated Resource Inventory

Planning efforts on Forest Plans, RPA, and resource management activities have highlighted the need to improve our resource information. Increasing demands upon limited resources further emphasizes the value of having the "right information" in a timely fashion. Costs for getting resource data are rising rapidly as labor and transportation costs increase.

A program to meet this inventory need is presently being developed. The objective of the program is to have improved information for use in updating Forest land and resource management plans. The program will address the framework of procedures for inventorying the resources, the hardware and software necessary to store and retrieve resource data and the budgetary and manpower (skills and numbers) needs as well as management requirements.

The following guidelines will be used in developing the integrated resource program:

- development of the inventory program will be based upon the present inventory data;

- line involvement will be such as to insure the program integrates all resource information needs into a total multiple use information base and will exercise controls necessary to achieve program objectives;

- interdisciplinary groups will be used to identify information needs and develop interpretations of data;

- Information Needs Analysis (INA) will be the first step in the inventory process;

- analysis of information needs and other procedures will recognize the four hierarchial levels in Forest Service planning and the different information needs of each level;

- initial implementation of the program will be at the Forest level;

- coordination of the inventory system with other Alaskan land managers will be done;

- basic classification schemes have been developed that will help organize the inventory effort.

TONGASS FOREST PLAN IMPLEMENTATION

The Tongass Land Management Plan established a concept for linking the Forest Plan to "on-the-ground" projects. The processes envisioned were discussed in the following TLMP direction:

> "Future Forest Plan Requirements: The management direction in this plan along with the listing of major activities provides the foundation for developing and implementing various projects (such as timber sales, recreation cabin construction, etc.) to meet the specified target outputs. For example, the plan schedules certain management areas for activities by time periods. Each year groups of these activities are put together into an integrated multi-resource program.

Project implementation is conducted in two phases. The first is called prescriptive since its end products are standards and guidelines which refine the direction included in the Forest Plan. The standards and guidelines, which will be added to this Forest Plan during its life, define how management activities and uses that are associated with the management areas are to be coordinated and controlled. They are based on data that are specific to these areas and appropriate to the kind of results in the project plans, contracts and permits that are reflective of the standards and guidelines which have been established for each management area. Project plans specify, in detail, how existing land characteristics may be altered in accordance with prescriptive phase directives. Project plans show how certain use opportunities are to be provided by detailing, for example, the location and standards for transportation facilities, physical structures and timber harvest patterns.

These phases are followed by evaluation and monitoring which serve to guage how well the direction in the Plan is being followed and how adequate the management direction is. Over time, the document will be amended and revised to improve its usefulness as a source of management direction."

The Phase I and Phase II concepts have presented a number of implementation problems. As part of the TLMP monitoring and evaluation process, these concepts and their application were examined to determine if improvements could be made. The following guidelines are the product of that evaluation. They are to be used on the three areas of the Tongass Forest to complete linkage between the Forest Plan direction and on the ground results. The concept will be used in the Chugach Forest Plan to complete it through the Phase I stage.

Phase I

The key to the effectiveness of any kind of plan is in how well it can be, and is, implemented. With land and resource management plans, the "implementing mechanism" is the Program Development and Budgeting process. The RPA Program, regional plans, and forest plans provide the overall management framework and general direction which is implemented through the program budget effort. The process supplements the land and resource management plans by making annual incremented changes to implement specific programs, and adjust planned programs to reflect current national, regional, or local priorities.

The RPA, Section 6, requires that all implemented programs, actions, or management practices must be consistent with the management direction contained in the land and resource management plans. The primary objective of this authority is to, first of all, provide consistency between approved plans and program proposals, budget allocations, and implemented management practices. Secondly, it is intended to provide a more efficient agency-wide management system, which promotes multi-purpose use of information and avoids repetitious planning activities.

The planning focus in implementing the Tongass Land Management Plan is to make the program budget linkage clearer to Forest managers and to the public. In addition, Forest Supervisors will be required to review the adequacy of existing standards and guidelines for proposed activities within a management area on the Tongass National Forest. Activities considered for the program will be examined in the context of the total management area and will be in sufficient detail to insure coordination of the proposed set of multiple-use projects.

This management area analysis process may indicate a need for more refined standards and guidelines to direct the design of specific projects. If additional direction is needed, an interdisciplinary team approach to designing those guidelines is required. That interdisciplinary team effort will include:

(1) a thorough discussion of the need for additional direction;

(2) the criterion used to define a range of potential standards and guidelines;

(3) the criterion used in evaluating and recommending proposed standards/guidelines for the management area(s).

The interdisciplinary team efforts are to be documented in the Forest Plan planning record and referred to the project (plan) design.

The process will produce standards and guidelines that are:

(1) area or forest-wide in scope and applicability. Examples of this type of direction are found in the Southeast Alaska Area Guide, Regional Plan, and Chatham Area guidelines;

(2) specific to the need of the management area or combination of management areas;

(3) specific to the need of a project area within a management area;

(4) combination of a, b, or c above.

The Tongass Plan recognized a need for added planning efforts in the case of the National Monuments, wilderness and other land allocations such as Wild and Scenic Rivers. These special area planning efforts are basically a refinement of the existing Tongass Plan. The completed documents:

(1) produce localized standards and guidelines;

(2) tie to the program budget which includes proposed and probable management practices;

(3) are accomplished within the Forest Service planning process with special criteria provided by Forest Service Manual, legislation, regulations, and policy (i.e., Forest Service Manual wilderness planning direction, long-term contract policy);

(4) format will vary according to the criterion driving the planning process. Environmental disclosure documentation (Environmental Assessment and/or Impact Statement) and subsequent record of decision will recognize these Special Area Plans as technical amendments to the approved Forest Plans. CEQ format will be followed.

These ongoing planning efforts constitute the Phase I Tongass Land Management Plan implementation.

Phase II

- Detail development of projects including environmental analysis will be required in the Project Planning Phase (Phase II).

- Ground specific standards and guidelines will be developed on a project-by-project as needed to supplement the Forest-wide standards and guidelines.

- Project planning will deal with sufficient area to insure road development and associated management activities are logical, cost-effective, and environmentally sound.

CHAPTER IV - DISTRIBUTION OF REGIONAL OBJECTIVES

The Region's share of the RPA Recommended Program displayed in Chapter III is further divided among the various operating units in the Region. In the Alaska Region, targets are distributed among four National Forest administrative units (three areas of the Tongass National Forest and the Chugach National Forest), and State and Private Forestry Programs.

The Regional Plan, then, links the Areas and Forests with the RPA Recommended Program -- in terms of both output and dollars -- and provides direction for program implementation in the Alaska Region.

The lists of figures that follow show the portion of the RPA Recommended Program shared by each administrative unit in the Region.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

CHUGACH NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation Use Includes VIS	Thousand Recreation Visitor Days	665.6	870.4	972.8	1,126.4	1,280.0	1,331.2	1,433.6	1,792	2,150.4
Dispersed Recreation Use Includes Wildlife/Fish	Thousand Recreation Visitor Days	1,156.7	1,237.4	1,291.2	1,345	1,614	2,178.9	2,421	2,555.5	2,690
Trail Construction/ Reconstruction	Miles	10.8	11.2	11.2	11.6	12	12.4	12.8	13.2	13.6
Wilderness Management 1)	Thousand Acres	0	0	0	0	0	0	0	0	0
Wildlife Habitat Improvement	Thousand Acre Equivalents	3.3	3.3	3.9	3.9	3.9	3.8	3.4	1.4	1.4
Anadromous Fish Improvement	Thousand Pounds	52.5	130.25	344	533.5	1,847.5	3,791.5	5,058.5	5,058.5	5,058.5
Programed Timber Sales Offerred	Million Board Feet	15	14	10	10	10	10	10	10	10
Reforestation	Acres	200	200	200	200	124	100	100	100	100
Timber Stand Improvement	Acres	65	65	65	65	100	100	100	100	100
Meeting Water Quality Goals	Million Acre Feet	43	43	43	43	43	43	43	43	43
Mineral Leases and Permits	Operating Plans	65	70	77	83	87	94	109	114	119

1) Wilderness designation on the Chugach National Forest is under consideration.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

CHUGACH NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Human Resources Programs 2)	Enrollee Years	207	207	207	207	34	34	34	34	34
Fire Management Effectiveness Index	Dollars/ Thousand Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition	Acres	45	50	50	50	50	50	50	50	50
Road Construction and Reconstruction	Miles	0	0	0	0	0	0	0	0	0
Costs - NFS Operational	Million Dollars 3)	2.7	2.7	2.7	3.0	3.9	4.4	4.6	4.7	4.8
Capital Investments	Million Dollars	10.7	11.1	10.9	10.7	8.9	8.6	8.0	7.8	7.2
Backlog	Million Dollars	0	0	0	0	0	0	0	0	0
Total Appropriated Funds 4)	Million Dollars	13.4	13.8	13.6	13.7	12.8	13.0	12.6	12.5	12.0
Total Allocated Funds 5)	Million Dollars	3.3	3.3	3.3	3.3	0	0	0	0	0
Total National Forest Funds	Million Dollars	16.7	17.1	16.9	17.0	12.8	13.0	12.6	12.5	12.0

2) Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

3) All costs and returns are shown in constant 1978 dollars.

4) National Forest System appropriated funds include all Youth Conservation Corps and Cooperator Funds.

5) National Forest System allocated costs include Young Adult Conservation Corps and other Human Resources Programs, Land and Water Conservation, and other funds. Costs exclude payments to the State and Boroughs and Federal Highway Funds.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

CHATHAM AREA - TONGASS NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation Use Includes VIS	Thousand Recreation Visitor Days	452.4	591.6	661.2	765.6	870	904.8	974.4	1,218	1,461.6
Dispersed Recreation Use Includes Wildlife/Fish	Thousand Recreation Visitor Days	1,651.2	1,766.4	1,843.2	1,920	2,304	3,110.4	3,456.0	3,648	3,840
Trail Construction/ Reconstruction	Miles	8.1	8.4	8.4	8.7	9.0	9.3	9.6	9.9	10.2
Wilderness Management	Thousand Acres	2,536	2,536	2,536	2,536	2,536	2,536	2,536	2,536	2,536
Wildlife Habitat Improvement	Thousand Acre Equivalents	.9	.9	.7	.7	.7	.4	.2	.2	.2
Anadromous Fish Improvement	Thousand Pounds	52.5	130.25	344	533.5	1,847.5	3,791.5	5,058.5	5,058.5	5,058.5
Programed Timber Sales Offerred 6)	Million Board Feet	163	117	133	106	115	115	115	115	115
Reforestation	Acres	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Timber Stand Improvement 1)	Acres	1,922	1,922	1,922	1,922	2,300	2,070	2,070	2,070	2,070
Meeting Water Quality Goals	Million Acre Feet	66	66	66	66	66	66	66	66	66
Mineral Leases and Permits	Operating Plans	43	47	51	56	58	62	74	77	80

1) Timber Stand Improvement (TSI) includes precommercial thinning and 300 to 400 acres of other TSI.

6) Volumes sold will be carefully monitored. Adjustments to the volume prepared and offerred from the Tongass NF will be made as needed to insure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

CHATHAM AREA - TONGASS NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Human Resources Programs 2)	Enrollee Years	90	90	90	90	0	0	0	0	0
Fire Management Effectiveness Index	Dollars/ Thousand Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition	Acres	250	250	250	250	252	252	252	254	256
Road Construction and Reconstruction	Miles	3	4	1	2	2	2	0	1	0
Costs - NFS Operational	Million Dollars 3)	5.0	5.0	5.0	5.3	7.2	7.8	8.1	8.5	8.6
Capital Investments	Million Dollars	19.4	20.3	20.0	19.5	16.4	15.8	14.5	14.1	13.1
Backlog	Million Dollars	.375	.375	.375	.375	.150	0	0	0	0
Total Appropriated Funds 4)	Million Dollars	24.4	25.3	25.0	24.8	23.6	23.6	22.6	22.6	21.7
Total Allocated Funds 5)	Million Dollars	1.7	1.7	1.7	1.7	0	0	0	0	0
Total National Forest Funds	Million Dollars	26.1	27.0	26.7	26.5	23.6	23.6	22.6	22.6	21.7

2) Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

3) All costs and returns are shown in constant 1978 dollars.

4) National Forest System appropriated funds include all Youth Conservation Corps and Cooperator Funds.

5) National Forest System allocated costs include Young Adult Conservation Corps and other Human Resources Programs, Land and Water Conservation, and other funds. Costs exclude payments to the State and Boroughs and Federal Highway Funds.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

KETCHIKAN AREA - TONGASS NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation Use Includes VIS	Thousand Recreation Visitor Days	126.1	164.9	184.3	213.4	242.5	252.2	271.6	339.5	407.4
Dispersed Recreation Use Includes Wildlife/Fish	Thousand Recreation Visitor Days	481.6	515.2	537.6	560	672	907.2	1,008	1,064	1,120
Trail Construction/ Reconstruction	Miles	5.4	5.6	5.6	5.8	6.0	6.2	6.4	6.6	6.8
Wilderness Management	Thousand Acres	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9
Wildlife Habitat Improvement	Thousand Acre Equivalents	.9	.9	.7	.7	.7	.4	.2	.2	.2
Anadromous Fish Improvement	Thousand Pounds	52.5	130.25	344	533.5	1,847.5	3,791.5	5,058.5	5,058.5	5,058.5
Programed Timber Sales Offerred 6)	Million Board Feet	192	208	206	251	227	227	227	227	227
Reforestation	Acres	70	70	70	70	130	150	150	150	150
Timber Stand Improvement 1)	Acres	3,983	3,983	3,983	3,983	3,278	3,627	3,627	3,627	3,627
Meeting Water Quality Goals	Million Acre Feet	50	50	50	50	50	50	50	50	50
Mineral Leases and Permits	Operating Plans	42	45	50	54	56	61	70	74	77

1) Timber Stand Improvement (TSI) includes precommercial thinning and 510 to 670 acres of other TSI.

6) Volumes sold will be carefully monitored. Adjustments to the volume prepared and offerred from the Tongass NF will be made as needed to insure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

KETCHIKAN AREA - TONGASS NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Human Resources Programs 2)	Enrollee Years	70	70	70	70	0	0	0	0	0
Fire Management Effectiveness Index	Dollars/ Thousand Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition	Acres	60	115	115	118	120	120	122	122	122
Road Construction and Reconstruction	Miles	5	5	1	3	3	3	1	0	1
Costs - NFS Operational	Million Dollars 3)	7.6	7.6	7.6	9.7	12.9	14.4	14.9	15.4	15.7
Capital Investments	Million Dollars	24.3	25.2	24.9	24.4	20.3	19.7	18.1	17.6	16.4
Backlog	Million Dollars	.350	.350	.350	.350	.10	0	0	0	0
Total Appropriated Funds 4)	Million Dollars	31.9	32.8	32.5	34.1	33.2	34.1	33.0	33.0	32.1
Total Allocated Funds 5)	Million Dollars	1.4	1.4	1.4	1.4	0	0	0	0	0
Total National Forest Funds	Million Dollars	33.3	34.2	33.9	35.5	33.2	34.1	33.0	33.0	32.1

2) Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

3) All costs and returns are shown in constant 1978 dollars.

4) National Forest System appropriated funds include all Youth Conservation Corps and Cooperator Funds.

5) National Forest System allocated costs include Young Adult Conservation Corps and other Human Resources Programs, Land and Water Conservation, and other funds. Costs exclude payments to the State and Boroughs and Federal Highway Funds.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

STIKINE AREA - TONGASS NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Recreation Use Includes VIS	Thousand Recreation Visitor Days	55.9	73.1	81.7	94.6	107.5	111.8	120.4	150.5	180.6
Dispersed Recreation Use Includes Wildlife/Fish	Thousand Recreation Visitor Days	1,010.5	1,081	1,128	1,175	1,410	1,903.5	2,115	2,232.5	2,350
Trail Construction/ Reconstruction	Miles	2.7	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.4
Wilderness Management	Thousand Acres	558	558	558	558	558	558	558	558	558
Wildlife Habitat Improvement	Thousand Acre Equivalents	.9	.9	.7	.7	.7	.4	.2	2.	.2
Anadromous Fish Improvement	Thousand Pounds	52.5	130.25	344	533.5	1,847.	3,791.5	5,058.5	5,058.5	5,058.5
Programed Timber Sales Offerred 6)	Million Board Feet	105	127	111	93	108	108	108	108	108
Reforestation	Acres	530	550	550	550	540	500	500	500	500
Timber Stand Improvement 1)	Acres	2,030	2,030	2,030	2,030	2,322	2,203	2,203	2,203	2,203
Meeting Water Quality Goals	Million Acre Feet	30	30	30	30	30	30	30	30	30
Mineral Leases and Permits	Operating Plans	40	43	47	52	54	58	67	70	74

1) Timber Stand Improvement (TSI) includes precommercial thinning and 400 to 530 acres of other TSI.

6) Volumes sold will be carefully monitored. Adjustments to the volume prepared and offerred from the Tongass NF will be made as needed to insure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

PROJECTED NATIONAL FOREST SYSTEM PROGRAM OUTPUTS,
ACTIVITIES AND COSTS FROM THE 1980 RPA RECOMMENDED PROGRAM

STIKINE AREA - TONGASS NATIONAL FOREST

OUTPUT/ACTIVITY	UNIT OF MEASURE	ANNUAL TARGETS 1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Human Resources Programs 2)	Enrollee Years	24	24	24	24	0	0	0	0	0
Fire Management Effectiveness Index	Dollars/ Thousand Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition	Acres	70	115	120	120	120	122	122	122	122
Road Construction and Reconstruction	Miles	2	2	0	3	1	1	1	1	1
Costs - NFS Operational	Million Dollars 3)	4.8	4.8	4.8	4.3	5.8	6.4	6.6	6.9	7.0
Capital Investments	Million Dollars	17.8	18.5	18.3	17.9	14.9	14.4	13.3	12.9	12.0
Backlog	Million Dollars	.375	.375	.375	.375	.150	.10	0	0	0
Total Appropriated Funds 4)	Million Dollars	22.6	23.3	23.1	22.2	20.7	20.8	19.9	19.8	19.0
Total Allocated Funds 5)	Million Dollars	1.9	1.9	1.9	1.9	0	0	0	0	0
Total National Forest Funds	Million Dollars	24.5	25.2	25.0	24.1	20.7	20.8	19.9	19.8	19.0

2) Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

3) All costs and returns are shown in constant 1978 dollars.

4) National Forest System appropriated funds include all Youth Conservation Corps and Cooperator Funds.

5) National Forest System allocated costs include Young Adult Conservation Corps and other Human Resources Programs, Land and Water Conservation, and other funds. Costs exclude payments to the State and Boroughs and Federal Highway Funds.

CHAPTER V - STANDARDS AND GUIDELINES

Introduction

This chapter contains standards and guidelines for Forest Service activities in Alaska. The policy sections of the Southeast Alaska Area Guide of 1977 served as the model. The Chapter is organized by elements: Human and Community Development; Soil; Air; Water; Fish; Wildlife; Estuaries and Tidal Meadows; Timber; Minerals and Geology; Recreation; Wilderness; Cultural Resources; Transportation; Lands; Forest Pest Management; and Protection. Note that the account structure of the Area Guide has been used. The term account has been changed to element and the names of some elements have been updated.

Regional standards and guidelines update some policies in the Southeast Alaska Area Guide. Other Area Guide policies have been referred to Forest planning (See EIS Appendix 1). All standards and guidelines are firm direction to the Tongass and Chugach National Forests. The policies referred to Forest planning may be modified through the Forest planning process.

HUMAN AND COMMUNITY DEVELOPMENT

1. Cooperatively develop a comprehensive community and regional socioeconomic profile for each Administrative Area on the Tongass and Chugach National Forests. Use the available resources of the Forest Service, State of Alaska, private consultants, colleges, and universities.

2. Coordinate Forest Service activities with local communities in the following manner:

a. Incorporate the plans and concerns of local communities, as represented by their governing bodies and through the public involvement process, in alternatives developed at all Forest Service planning levels;

b. Identify and consider community preferences in Forest Service management decisions where communities and residents may be significantly affected;

c. Develop alternatives during the planning process that reflect community needs and preferences as expressed through the public involvement process prior to starting the environmental impact statement procedure. Examples of community needs include areas required for recreation or subsistence activities, aesthetic considerations, lifestyle options, transportation system options and community growth goals.

3. The State of Alaska has the primary leadership role in setting policy governing the establishment of temporary or permanent communities.

4. The Forest Service will promote research to quantify nonconsumtive and amenity uses so that these values can be more easily equated with those uses already having quantifiable values.

5. Provide opportunities, such as an independent timber sale program geared to small businesses, for the development or utilization of Forest resources by small entrepreneurs as well as large companies or corporations.

6. Work with citizen groups, service organizations and local and State of Alaska governments to initiate needed employment and manpower programs.

7. Through the Forest Service's State and Private Forestry programs, work with the State agencies and private land owners to encourage forest industries, including tourism, outdoor recreation, timber and other opportunities that will contribute to economic development and stability.

8. Work cooperatively with State agencies and private organizations in carrying out the subsistence provisions in the Alaska Lands Act. The State of Alaska has the lead role in determining viable subsistence, sport and commercial use levels for fish and game populations.

9. Use economic efficiency as one of the standards for evaluating alternatives in environmental analyses where significant changes in costs and/or outputs are considered.

10. Identify and display economic and social impacts of programs and/or management alternatives in environmental analyses where significant changes in outputs between alternatives are considered. Give particular emphasis to industries which are dependent on National Forest program outputs such as timber, fisheries, and tourism.

11. A well-designed, well-executed public involvement program is important in identifying public preferences and social values. Develop and implement comprehensive public involvement activities during major Forest Service planning efforts. Include a systematic analysis process which is based on established professional principles.

SOIL

1. Continue a soil monitoring program on the Forests to measure soil behavior and response under various conditions. This program will provide a scientific means to evaluate losses of nutrients and/or soil material as a result of land management activities.

2. Conduct a soil resource inventory and prepare a report for all projects significantly affecting soil resources.

3. Incorporate provisions for revegetating and stabilizing temporary roads, landings, borrow pits, skid trails, and other human-caused soil disturbances into project plans. Where revegetation measures are required, seed or plant the first growing season following disturbance or cessation of use. Drain borrow and rock pits no longer needed unless developed for fish or waterfowl. Revegetate mineral soils using the most appropriate means. Rehabilitate areas already disturbed or not covered by contract on a priority basis as watershed rehabilitation money becomes available. Highly erodable terrain directly affecting fish and water resources is the highest priority for scheduling rehabilitation projects.

4. Unless approved in advance by the Forest Supervisor, do not log or road on slopes greater than 75 percent. Prepare prescriptions to reduce the possibility of soil failure on slopes between 35 and 75 percent if a risk of failure exists.

5. Design crossings of drainages to prevent debris jamming.

6. Locate rock quarries and borrow pits and time their use to minimize the impacts upon other resource values.

7. Conduct development activities on organic soils and mineral soils classified as wetlands in compliance with existing executive orders.

AIR

The only Forest Service activity which has significant impact on air quality is prescribed burning. Smoke management will be coordinated with the Alaska Department of Environmental Conservation to assure that air quality increments are not exceeded. Local sources of emission will be evaluated to assure that airshed integrity is maintained.

WATER

1. Maintain a long-term monitoring program on representative watersheds to assess land management impacts on water quality and stream site productivity.

2. Maintain a long-term monitoring program on representative log transfer and storage sites to assess the effects on water quality and marine habitat.

3. Cooperate and participate with the State of Alaska through the 208 Cooperative Agreement to identify and monitor new non-point water pollution sources and to enforce water quality standards.

4. Use water resource inventories and reports to evaluate potential impacts of land management activities. Identify sensitive landforms where non-point source pollution problems are likely to occur and evaluate probable impacts of management alternatives.

5. Manage floodplains to avoid adverse impacts associated with occupancy and modification and in compliance with executive orders.

FISH

1. Fully coordinate Forest Service activities with other agencies involved with the fishery resource.

2. Solve mutual problems and achieve common goals and objectives through the Master Memorandum of Understanding between the Forest Service and the Alaska Department of Fish and Game.

3. The Forest Service recognizes the fishery resource as a major component of the National Forests and the source of numerous important products, benefits, and services. Give fish habitat management needs equal consideration with other resources in all Forest Service programs.

4. The Forest Service considers any lake or stream on National Forest land that does or can support anadromous or resident fish as fish habitat. This includes, but is not limited to, all streams designated by the Alaska Department of Fish and Game as salmon streams and potential habitat which could be used as a result of fishways, or other enhancement. The Forest Service recognizes that the entire watershed, including trees, shrubs, and grasses, and particularly streamside and lakeside vegetation, is an integral component of the total ecosystem and should be managed as such.

5. Complete a prescriptive plan for proposals for all land use activities:

a. The Fish Habitat Management Unit (FHMU) includes all components of the fish habitat as identified through the interdisciplinary process. The FHMU is that portion of land including the stream channel and the stream banks defined for the protection of stream habitat and maintenance of stream productivity. Give special consideration to that area 100 feet wide on either side of the stream.

The FHMU is managed as a resource no more or less important than the other resources. Within the FHMU, timber management practices and other land use activities are prescribed to meet the management goals for fish habitat.

b. Identify temperature-sensitive streams, recognizing State water quality standards pertaining to fish habitat. Such streams require special prescriptions for management of the shade-producing streamside overstory (trees, shrubs, grasses). The amount of overstory that can be removed is determined by reference to guidelines in The Temperature Sensitive Stream, 1977, until revised.

6. Coordinate with State and Federal agencies in maintaining a continuous program for detailed research, monitoring and assessment of the impacts of land use activities on fish habitat.

a. Conduct monitoring programs to determine the implementation effects of Forest Plan standards and guidelines on fish habitat.

b. Monitoring results will document habitat and abundance trends of management indicator species and provide a basis to recommend changes.

7. Goals, objectives, and monitoring requirements will be established for management indicator species.

Describe in Forest plans the anticipated effect on the fisheries resource; the management indicator species selected for management and monitoring purposes; the reasons for selecting the indicator species; the monitoring schedule; and the expected precision and accuracy of the monitoring process.

Utilize the following criteria to select management indicator species, keeping in mind the need to restrict species to a practicable number:

a. Threatened or endangered species on Federal lists are selected as management indicator species;

b. Species identified in State lists of endangered or threatened species or in public issues or management concerns;

c. Species for which there is considerable concern due to other pertinent laws or policies;

d. Species with which there are current and/or anticipated conflicts, concerns or issues relative to habitat requirements and other resource management activities;

e. Species for which resource use allocations and subsequent management practices could significantly impact habitat management options;

f. Species which represent or reflect enviornmental suitability for other species (true ecological indicator species);

g. Species having significant economic value. Normally these species are those commonly commercial or sport fished.

AQUACULTURE

1. Receive permit applications for aquaculture sites from the Alaska Department of Fish and Game.

2. Consider, in cooperation with the Alaska Department of Fish and Game and the Regional Aquaculture Associations, land suitable for aquaculture sites. Site availability will depend on the results of land management planning and environmental analysis.

3. Conduct aquaculture activities on the Forests under the Memoranda of Understanding supplemental to the three-way Memorandum of Understanding between the Forest Service, Alaska Department of Fish and Game, and the Regional Aquaculture Association.

WILDLIFE

1. Fully coordinate with other agencies involved with the wildlife resource.

2. Solve mutual problems and achieve common goals through the Master Memorandum of Understanding between the Forest Service and the Alaska Department of Fish and Game.

3. The Forest Service recognizes wildlife resources as a major component of the National Forests and the source of numerous important products, benefits and services. Give wildlife habitat management needs equal consideration with other resources in all Forest Service programs.

4. Coordinate wildlife habitat surveys, studies, plans and improvement projects with the Alaska Department of Fish and Game. Use the authorities for cooperative work under the Sikes Act.

5. The Alaska Department of Fish and Game and the Forest Service should jointly establish population objectives for wildlife and identify the amount and quality of habitat needed to sustain the desired population objectives.

6. Emphasize management for indigenous wildlife species and natural habitat over other wildlife management approaches, except in cases where the Forest Service and the Alaska Department of Fish and Game agree upon other alternatives. Give special consideration to the habitat of sensitive, threatened, and endangered species of plants, animals, and fish. Provide, as needed, for the identification, habitat management and protection of these species.

7. Implement policies through the interdisciplinary process:

   a. Recognize the capabilities and sensitivities of important wildlife habitat areas in land allocation.

   b. The Forest Service recognizes that, for many wildlife species, information on the impacts of land use activities on habitat and on factors determining the suitability of habitat for wildlife are incomplete. Identify these species jointly with the Alaska Department of Fish and Game.

   c. Provide the habitat management standards necessary to insure that viable population levels of all wildlife and fish on the Forest are maintained over time despite normal fluctuations in population numbers.

   d. Habitat management standards for indicator species are, as appropriate, aimed at supporting populations above the viable population level.

e. The Forest Service recognizes the possibility that alteration of wildlife habitat through a series of projects over an entire range of a species may result in cummulative impacts.

8. The National significance of the bald eagle and its habitat necessitates special protection through specific Forest Service management measures developed in conjunction with the U.S. Fish and Wildlife Service. These include:

a. Maintaining quality and quantity of eagle habitat, nest trees and perch trees;

b. Assisting the Fish and Wildlife Service in conducting surveys and studies;

c. Establishing an undisturbed wildlife habitat zone of 100 meters (330 feet) or more in radius around each eagle nest tree prior to any forest development activity in the vicinity.

9. Goals, objectives, and monitoring requirements will be established for management indicator species.

Describe in Forest plans the anticipated effect on the wildlife resource; the management indicator species selected for management and monitoring purposes; the reasons for selecting the indicator species; the monitoring schedule; and the expected precision and accuracy of the monitoring process.

Utilize the following criteria to select management indicator species, keeping in mind the need to restrict species to a practicable number:

a. Threatened or endangered species on Federal lists are selected as management indicator species;

b. Species identified in State lists of endangered or threatened species or in public issues or management concerns;

c. Species for which there is considerable concern due to other pertinent laws or policies;

d. Species with which there are current and/or anticipated conflicts, concerns or issues relative to habitat requirements and other resource management activities;

e. Species for which the planning area comprises a majority of the species total Statewide, Regional, or National habitat;

f. Species for which resource use allocations and subsequent management practices could significantly impact habitat management options;

g. Species which represent or reflect environmental suitability for other species (true ecological indicator species);

h. Species having significant economic value. Normally these species are those commonly hunted, fished, or trapped and those for which there is relatively high demand (consumptive and non-consumptive).

Address plant and animal diversity needs as part of the planning process. Establish habitat quality, quantity and distribution standards for management indicator species in Forest plans.

ESTUARIES AND TIDAL MEADOWS

1. Coordinate the planning and decisionmaking process with the Alaska Department of Fish and Game, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. In areas where agencies have overlapping resource management responsibilities, seek guidance and direction, and execute plans and decisions in a manner consistent with the statutory responsibilities of these agencies.

2. Recognize the ecological role of intertidal and marine areas in supporting fish, shellfish and wildlife populations in management decisions affecting habitat.

3. Make determinations through an interdisciplinary process.

4. Prepare an interdisciplinary plan for all proposals for use (e.g., mining, logging, aquaculture, hydroelectric projects, developed recreation facilities). In the plan specify (1) appropriate Estuary Management Units (EMU's); and (2) formulation of prescriptions. (This does not include activities that are minor, lacking in measurable impact and of insufficient impact to cause objection by any Forest Service constituency.)

An EMU includes components of an estuary and adjacent areas determined to be necessary for implementing management prescriptions. An EMU will not exclude management activities consistent with the goals for estuaries.

5. Phase out the use of existing log storage and transfer sites not complying with these policies. Coordinate termination of site use with alternative sites.

6. Where a nonconforming site and/or facility is considered for use during a subsequent contract or five-year operation period, use an interdiciplinary process to determine whether adverse impacts of relocating the nonconforming site exceed those resulting from continued use of the existing site.

1. Silvicultural Systems

Even-aged management is the prescribed silvicultural system for all species except where uneven-aged management is needed to meet other resource objectives. Clearcutting to regenerate an even-aged stand will be used as a cutting method only where such a practice is determined to be optimum to meet the objectives and requirements of the forest land management plan, and can be carried out in a manner consistent with the interdisciplinary process for the protection of soil, water, fish and wildlife, recreation, visual resources, and the regeneration of the timber resource.

Management prescriptions will not be chosen primarily because they will yield the greatest dollar return or the greatest amount of timber, although these factors will be considered.

a. Even-aged Silvicultural Systems

1) Clearcutting

(a) This system can be applied to all timber types in the Region.

(b) Where considered optimal, it must generally be applied where trees are cut to achieve timber production objectives established in Forest Plans; where there is a risk of dwarf mistletoe reinfection; and, where risk of windthrow is determined to be high.

(c) It may be applied where longer rotations are established to meet other resource objectives; on unregulated components of the commercial forest land; and where wood is harvested for energy from lands classified as unsuitable for timber products.

2) Shelterwood

(a) This system may be applied to all timber types in the Region.

(b) It may be applied where the interdisciplinary process determines the system will be appropriate to meet the objectives and requirements of Forest Plans, including the protection of over-steep or unstable soils, visual resources, fish and wildlife and for specialty products.

(c) It may be used for harvesting wood for energy purposes from lands classified as unsuitable for timber production.

(d) It should be used only where recurring salvage operations can be conducted.

(e) Use of the system should be limited to harvest areas which can employ yarding equipment suited to use in partial cuts (Timber Sale Preparation Handbook, FSH 2409.24, R-10).

3) Seed Tree Cutting

This method may be applied anywhere that does not have an adequate seed source in surrounding stands.

b. Uneven-aged Silvicultural Systems

1) Individual Tree and Group Selection

(a) These systems can be applied in all timber types in the following areas:

(1) "Unregulated" timber stands

(2) Unstable soils or steep slopes

(3) "Special" components of regulated stands where Forest Plans establish criteria or conditions for uneven-aged management

(4) Salvage

(5) Where wood for energy is harvested from lands classed as unsuitable for timber harvest

(b) These systems must be limited to harvest areas which can employ yarding equipment suited to use in partial cuts (Timber Sale Preparation Handbook, FSH 2409.24, R-10).

(These regeneration cutting methods are discussed further in the Environmental Impact Statement, Chapter IV, Environmental Consequences.)

Standards for Forest Types in the Alaska Region

a. Standards for White Spruce Forest Type

White spruce is the principle species in two western forest types. Principle types are white spruce and white spruce-birch. Minor types are white spruce-popular-birch and white spruce-aspen. Major considerations in achieving regeneration are seed supply and exposed mineral soil.

Even-aged management will be used where the management objective is to produce wood fiber.

Uneven-aged management practices are generally not appropriate, but may be used on those sites where windthrow is not anticipated and management objectives place other uses above fiber production.

Commercial thinning should be considered where opportunities exist and mixed stands may be improved by removal of hardwoods. In all cases, selection of the appropriate silvicultural system(s) and prescription of the associated treatments will reflect consideration of relevant criteria or factors within the following categories.

1) Abiotic - site factors that will remain constant over time, e. g., soil, slope, aspect, elevation, plant, community, climate, and landform.

2) Biologic - stand condition, successional trends, protection, regeneration capability, and suitability of present genetic material.

3) Economic - species value, market factors, quality, logging systems, volume per acre, and regeneration costs and difficulties.

4) Management Objectives - species, visuals, land use allocations, and other resource objectives, and impacts or implications.

In addition to the standards above -- and to the specific considerations governing the application of standards in the selection of appropriate silvicultural systems, establishment of maximum size, dispersal, and size variation of opening, etc., set forth in 36 CFR 219.13 -- consideration will be given to the following conditions peculiar to this forest type.

1) Big game forage and cover requirements.

2) Endemic and epidemic insect attacks.

3) Solar radiation.

4) Need for site preparation or planting.

Supplementary guidance and technological support for selection of appropriate silvicultural and for associated prescriptions are found in Silvicultural Systems for the Major Forest Types of the United States, Agricultural Handbook No. 445; Silvics of Forest Trees of the United States, Agricultural Handbook No. 271; and Regeneration of White Spruce, USDA Forest Service Research Paper PNW-79. The standards and guidelines here will be amended when subsequent research and experience demonstrate the need for amendment.

b. Standards for Western Hemlock-Sitka Spruce Forest Type and Associated Species and Mixtures

The hemlock-spruce type is composed of a number of conifer and hardwood species. These species have a range of tolerance to shade. There are also differences in seed bed requirements for natural regeneration with some species requiring mineral soil or mixed organic and mineral soil to become established in significant numbers. Many soils within the range of this type are highly vulnerable to windthrow. Dwarf mistletoe is common on hemlock species on the Tongass National Forest.

Even-aged management will be used where the management objective is to maintain fast growing, mistletoe-free stands of mixed species.

Uneven-aged management practices are appropriate only on those sites where significant windthrow is not anticipated and the management goal does not include high timber yields of mixed species.

The opportunities for commercial thinning this decade are extremely limited due to the small amount of timber in the age class that will respond to thinning. Commercial thinning will not be used in determining allowable sale quantities until it can be tested in coastal Alaska conditions. All harvesting done as commercial thinning will be monitored to determine the extent of blowdown, logging damage, and other effects.

In all cases, selection of the appropriate silvicultural system(s) and prescription of the associated treatments will reflect consideration of the relevant abiotic, biological, economic and management objectives similar to those listed for white spruce.

In addition to the standards above -- and to the specific considerations governing the application of standards in the selection of appropriate silvicultural systems, establishment of maximum size, dispersal, and size variation of opening, etc., set forth in 36 CFR 219.13 -- consideration will be given to the following conditions peculiar to this forest type.

1) Solar radiation.

2) Disease populations.

3) Windthrow hazard.

Supplementary guidance and technological support for selection of appropriate silvicultural and for associated prescriptions are found in Silvicultural Systems for the Major Forest Types of the United States, Agricultural Handbook No. 445; and Silvics of Forest Trees of the United States, Agricultural Handbook No. 271. The standards and guidelines here will be amended when subsequent research and experience demonstrate the need for amendment.

c. Standards for Alaska Hardwoods Forest Type

These hardwoods are pioneer species and the stands may be invaded by conifer species. Where the management objective is perpetuation of the type, even-aged management is the standard for selection of the appropriate silviculture system(s) to be applied to that type. The intolerance of these species to shade, and their susceptability to several fungus diseases are controlling factors supporting even-aged management of these hardwoods. Uneven-aged management practices are appropriate only where the management objective is conversion to conifers. Manipulation of cutting practices, browsing intensity, and burning in various combinations may afford best management opportunities for special management situations.

In all cases, selection of the appropriate silvicultural system(s) and prescription of the associated treatments will reflect consideration of the relevant abiotic, biological, economic and management objectives similar to those listed for white spruce.

In addition to the standards above -- and to the specific considerations governing the application of standards in the selection of appropriate silvicultural systems, establishment of maximum size, dispersal, and size variation of opening, etc., set forth in 36 CFR 219.13 -- consideration will be given to the following conditions peculiar to this forest type.

1) Wildlife forage and cover requirements.

2) Endemic insects and disease populations.

3) Need for site preparation.

Supplementary guidance and technological support for selection of appropriate silvicultural and for associated prescriptions are found in Silvicultural Systems for the Major Forest Types of the United States, Agricultural Handbook No. 445; and Silvics of Forest Trees of the United States, Agricultural Handbook No. 271. The standards and guidelines here will be amended when subsequent research and experience demonstrate the need for amendment.

d. Clearcutting and other cuts designed to regenerate an even-aged stand of timber will be used as a cutting method only where cutting units are located so timber stands can be logged without creating islands of timber that cannot be economically harvested in the future or creating areas where future logging will destroy regeneration established following an earlier regeneration cutting.

2. Maximum Size of Created Openings

NFMA Regulations provide that 100 acres is the maximum size limit of created openings to be allowed for the hemlock-Sitka spruce forest type of coastal Alaska unless excepted under specific conditions. Although the Regulations speak only of the hemlock-Sitka spruce type of coastal Alaska, the more pure stands of both species, the cedar type, the Chugach White spruce, and coastal hardwoods type will also be governed by the 100-acre limit.

Cedar is usually considered to be a component of the broad hemlock-Sitka spruce ecotype. White spruce responds similarly to the silvicultural methods in use for the hemlock-spruce type since these methods simulate conditions under which stands develop naturally. The established limits do not apply to the size of areas harvested as a result of natural catastrophic conditions, such as fire, insect and disease attack, or windstorm. Recognizing that harvest units must be designed to accomplish management goals, created openings may be larger where larger units will produce a more desirable contribution of benefits. Where it is determined that exceptions to the size limitation is warranted, the actual size will be determined through an interdisciplinary process. Following a 60-day public review period, approval of the Regional Forester is required. Factors to be considered to determine when a larger size may be permitted are:

a. Topography

b. Relationship of Units to Other Natural or Artificial Openings and Proximity of Units

c. Coordination and Consistency with Adjacent Management Areas

d. Effect on Water Quality and Quantity

e. Visual Absorbtion Capacity

f. Effect on Wildlife and Fish Habitat

g. Regeneration Requirements for Desirable Tree Species Based Upon Latest Research

h. Transportation and Harvesting System Requirements

i. Natural and Biological Hazards to Survival of Residual Trees and Surrounding Stands

j. Relative Total Costs of Preparation, Logging and Administration of Harvest Cuts

Forest Supervisors will identify the particular conditions under which the larger size is warranted and explain the benefits to be gained.

3. Dispersal and Size Variation of Tree Openings

When openings are created in the forest by the application of even-aged silviculture, the openings will be shaped and blended with the natural terrain to achieve aesthetic and wildlife habitat objectives to the extent practicable. Openings will be located to achieve the desired combination of multiple objectives. Distribution of openings over time will conform to a total compartment multi-entry layout plan and be scheduled taking into consideration the assumptions used in the analytical allocation model. The multi-entry layout plan must consider all the National Forest land involved. Assumptions used for plan amendements or revisions should review activities already scheduled.

In developing multi-entry layout plans, the steps below will be followed:

a. Identify and delineate non-forest and non-commercial forest.

b. Identify and delineate natural unregulated areas such as V-notches, muskegs, and sensitive soils.

c. Identify and delineate unregulated areas based on management considerations such as municipal watersheds, administrative sites, recreation areas, offshore islands less than 50 acres and other considerations.

d. Identify and delineate areas required to meet sensitive wildife and fisheries habitats needs such as bald eagle nest trees and perching and roosting areas; key winter habitats for black-tailed deer, moose and mountain goats; key resting, cover and feeding areas; and stream protection zones.

e. Identify and delineate areas of extended rotation to meet wildlife, visual or other management objectives.

f. Harvest scheduling will not include lands that will be retained to meet the needs of other resources unless the condition to be retained is time specific.

Harvest-unit selection for each entry will consider:

a. Topography -- Dispersion of openings will consider topography as it influences (1) technological ability to harvest timber, (2) layout locations to avoid blowdown, (3) natural drainage patterns, and (4) provisions for flexibility needed in landscape design.

b. Relationship to Other Openings -- Areas adjacent or close to created openings should not be scheduled for entry until openings from an earlier harvest are no longer considered openings, or otherwise meet management prescription objectives. Uncut blocks of regulated commercial forest land must be retained in sizes and shapes that will constitute logical logging units.

c. Visual Quality -- Reshaping or joining of existing openings may be necessary to accomplish visual and other resource quality objectives.

d. Wildlife and Fisheries Habitat -- Wildife and fisheries needs over time must be considered in order to maintain the habitat potential needed to insure desired population levels.

e. Transportation System -- Harvest will be dispersed to maximize the effectiveness of the proposed transportation system in meeting overall management prescriptions for the area planned.

Sale layouts must include a portion of marginal or low-volume timber stands, where such stands exist in the sale areas. (Yield calculations in the Tongass Land Management Plan are based on harvesting 10 percent of the marginal stand component in addition to a proportion of technologically marginal stands provided for by the special investment determinations.)

4. When a Cutover Area is No Longer Considered An Opening

Minimum stocking levels will be based on spacing, distribution, and stand management objectives rather than the number of trees per acre, in accordance with regeneration stocking guides contained in Forest Service Handbook 2409.26d, Region 10, Silvicultural Examination and Prescription Handbook.

Created openings will be adequately stocked with desirable tree species, which are approximately five feet in height, on National Forests in coastal Alaska before the area will no longer be considered an opening for the purposes of limitations on scheduling, locations, and size of additional created openings on National Forest land.

The basis for this determination will be the third year silvicultural survey (item 6e, Management Intensity).

Forest Supervisors may adjust height/density requirements for specific resource management considerations, e.g., wildlife habitat and/or visual quality, to provide a state of vegetation which meets management prescription objectives.

5. Biological Growth Potential

National Forest System lands are considered capable of timber production when the bilogical growth potential exceeds 20 cubic feet per acre per year partial stem volume (stump height to four inches DIB).

Inclusions of forest land of less than the aforementioned growth potential will be harvested when necessary for preparation of logical harvest units. This principle will apply to other minor inclusions of lands classified as unsuitable because of inability to separate them.

The harvesting of lands of less than the aforementioned growth potential for fuelwood is permitted. Occasional sawlog trees will be scattered in these areas. These merchantable sawlogs may be sold as sawlogs when the area is havested primarily for fuelwood.

The material harvested from lands not capable of growing 20 cubic feet per acre annually is not included in the allowable sale quantity.

6. Management Intensity

Implement new technologies leading to the increased utilization of wood products on the Alaska National Forests.

Achieve opportunities to increase timber yields on National Forest Lands in Alaska. Continue management practices such as planting, release, and weeding as needed, and insect and disease control.

Maintain the timber supply from the Tongass National Forest to dependent industry at a rate of four billion five hundred million board feet per decade.

Achieve RPA targets on the Tongass National Forest with investments in advanced roading, precommercial thinning, and advanced logging system layout and development.

Maintain and enhance productivity of suitable forested land (all ownerships) to minimize inflationary impacts of wood product prices on the domestic economy and contribute toward a net National export of forest products by the year 2030.

Achieve and maintain, where possible, the productivity of commercial timber lands at 90 percent of their potential level of growth, consistent with the provisions of NFMA.

Seeding or planting shall be used to reforest areas on which natural regeneration has not occurred or where accelerated regeneration is desired. Genetically improved seed trees will be used as they become available.

Examine all National Forest lands treated after the first and third growing seasons. This requirement will be handled in the following way:

a. Examine artificial seeding or planting treatments one and three years after treatment.

b. Conduct timber stand improvement project surveys, as part of project inspection or within one year of completion. For most projects, no third year examination will be completed.

c. No first year surveys are required if the silvicultural prescription anticipates natural regeneration.

d. Stands will be certified as stocked if the third year survey indicates that the area meets stocking standards.

e. Schedule another survey not later than seven growing seasons after harvest, if the third year survey indicates the area is very likely to be stocked but more time is required to make this determination.

f. Prescribe artificial regeneration if the third year survey indicates that natural regeneration is highly unlikely.

Schedule artificial reforestation and timber stand improvement projects having benefits to other resources, before those benefiting only one resource. Examples would be precommercial thinning in winter deer range and reforestation of areas having scenic value.

Forest fertilization may be used on soils determined to have insufficient nutrient status to allow the successful establishment of a conifer cover within the time constraints imposed.

Management intensity also includes the selection, scheduling, and implementation of the following additional silvicultural practices:

a) Commercial Thinning

Commercial thinning, an intermediate step in even-aged management, is a removal of some trees from an immature stand in order, primarily, to accelerate the growth of the remaining trees but also by suitable selection, to improve the average form of the trees that remain. It can also be used to increase forage for some species of wildlife. Opportunities for commercial thinning this decade are extremely limited due to the small amount of timber in the age class that will respond to thinning.

Volumes from commercial thinning will not be used in determining allowable sale quanitities in coastal forests until the practicality of use in other than limited situations can be demonstrated in coastal Alaska conditions.

b) Salvage Cutting - Individual Trees

Salvage cutting is the harvesting of individual dead or dying trees (trees not expected to live 20 years) wherever they may occur. Salvage may include trees damaged in road construction.

c) Prescribed Burning

Controlled application of fire to fuels under such conditions of weather, fuel moisture, soil moisture, etc. as to allow fire to be confined to a predetermined area and at the same time to produce the intensity of heat and rate of spread required to produce certain planned objectives of silviculture.

This practice can be used for preparing sites for planting and for maintaining or improving wildife habitat and other resource needs. It may also be used for fuel management purposes where the wood residue cannot be used for other purposes. It will be used on a trial basis for reducing overstocking of advanced regeneration in harvested areas following an Approved Administrative Study Plan.

d) Precommercial Thinning

A type of thinning that particularly favors the dominant or selected dominants more or less evenly distributed over the stand by removing a varying proportion of the other trees.

This practice can be applied to all stands where appropriate to meet objectives of the Forest Plan.

e) Fertilization

Fertilization of forests is generally accomplished by applying mineral fertilizers to increase the level of nutrients that are deficient for maximum tree growth or seed production. Economic and silvicultural research, however, has shown fertilization to often have marginal economic returns in terms of increasing wood or seed crops. Forest fertilization may therefore be used on soils determined to have insufficient nutrients to allow the successful establishment of a conifer cover within the time constraints imposed.

f) Release of Conifers from Overtopping Vegetation

Freeing a tree or group of trees from more immediate competition by cutting or otherwise eliminating growth that is overtopping or closely surrounding it.

To be applied as necessary to all commercial forest land used in calculating the allowable sale quantity or as needed for other resource management.

g) Site Preparation for Planting

A practice in which the canopy, ground cover, and soil are modified with the intent of rendering them suitable for planting trees for the purpose of regenerating the site.

These practices can be applied as needed for resource management.

7. Utilization Standards

Require utilization and optimum practical use of wood material. Promote the use of wood for its highest value product commensurate with present and anticipated supply and demand. Improvements in utilization will be made through sale preparation, appraisals, contract administration and dissemination of research information. Sale and utilization of dead, blown-down and other deteriorating timber will receive high priority.

Utilization standards are for harvest scheduling purposes. Actual sale contracts will continue to emphasize maximum feasible utilization standards.

The Forest Service will continue to grow and manage quality timber stands of sawtimber size except from forest types and sites on which it is not practicable to produce continuous crops of sawtimber size or quality.

Minimum sawlog merchantability standards for the Tongass and Chugach National Forests are displayed in "a" and "b" below.

a. For stands classified as "regenerated" in timber harvest schedules, utilization standards will be as follows:

All Forests

Species/Product - All sawlogs
Minimum DBH - 7.0 inches
Minimum Top Diameter (DIB) - 5 inches
% Sound Volume - 25%

The volume of endemic mortality, cull or utility logs will not be included in allowable sale quantity calculations because they were not inventoried or included in the yield calculations.

b. The minimum utilization standards to be used for determining the harvest schedules 1/ on existing old growth stands are:

Tongass National Forest	Chugach National Forest
Species/Product - All sawlogs 2/	Species/Product - All sawlogs
Minimum DBH - 9.0 inches	Minimum DBH - 9.0 inches
Minimum Log Length - 12 feet	Minimum Log Length - 8 feet
Minimum Top Diameter (DIB) - 6 inches	Minimum Top Diameter (DIB) - 6 inches
% Sound Volume - 33 1/3%	% Sound Volume - 33 1/3%

Minimum utilization standards will be reviewed periodically and adjusted according to current utilization trends, market conditions, and technological state-of-the-art.

1/In determination of harvest levels, slight variations are allowed to conform to existing inventories and yield tables.
2/DEIS, Chapter IV, reviews recent distribution of cant and pulp production.

c. Forest Supervisors will make provision for the yarding of unmerchantable material from sales where there are transportation links to established communities to improve utilization of firewood material.

d. Harvest scheduling will consider priorities for deteriorating stands, incompletely stocked stands, and stands which have achieved their productive potential. Scheduling will also consider the goals and objectives of the Forest Plan and the most efficient way of achieving them.

e. Continue program to salvage beach logs in cooperation with the State of Alaska.

f. Plan sale offerings to encourage competitive bidding in a range of sizes and species that provides opportunities for small business enterprises.

8. Mean Annual Increment

The final harvest of even-aged stands will not be scheduled until the stand approaches culmination of mean annual increment (CMAI) of growth.

Culmination of mean annual increment, in the management of even-aged stands, will be indicated by the average age of the stand based on cubic foot volume.

9. Sale Administration

Frequency of timber sale inspection will be determined by the complexity of the timber sale and operator performance with the objective being to insure full contract compliance.

10. Project Monitoring

Each project will be monitored to evaluate the adequacy of management practices. Information collected in this process will be used to recommend improvements or changes in the planning of future activities.

MINERALS AND GEOLOGY

1. Use all practical measures to protect other resources during mining. Prospectors and claimants are required to comply with Federal and State mining and leasing laws as well as National Forest mining regulations.

2. Promptly evaluate and take appropriate action on operating plans required under the National Forest mining regulations.

3. Prepare an environmental assessment for all operating plans.

4. Where the environmental analysis indicates significant impacts may occur, prepare an environmental impact statement to precede issuance of permits or the approval of an operating plan.

5. Require bonds in all cases where significant surface disturbance is anticipated to assure adequate reclamation measures are provided.

6. The Forest Service assures prospectors and claimants right of ingress and egress granted under the General Mining Law of 1872, the Alaska Lands Act of 1980, and the National Forest mining regulations.

7. Grant mineral materials permits for extraction of sand, gravel and rock when such resources are not reasonably available on private land, when it is consistent with the land use plan, and when adequate environmental protection measures can be taken.

8. Design and excavate borrow pits to facilitate their conversion to salmon rearing ponds where practicable.

RECREATION

1. Identify, designate and manage the recreational resource of the National Forest for the greatest public benefit considering National, as well as regional and local needs.

2. Provide a broad spectrum of recreation opportunities in accord with identified needs and demands. Use the Recreation Opportunity Spectrum (ROS) framework to inventory, provide planning input, manage and monitor recreation opportunity. Use recreation improvements to facilitate dispersed recreation.

3. Use recreation opportunities identified through the Recreation Opportunity Spectrum (ROS) inventory in Forest Land Management Plans. Give primary consideration to those recreation opportunities now being actively utilized by the public for recreation pursuits. Retain other identified opportunities to the extent possible.

4. Inventory and evaluate the visual resource as an integrated part of the forest planning process addressing both the landscape's visual attractiveness and the public's visual expectation. Assign Adopted Visual Quality Objectives (VQO's) as part of the Forest Land Management Plan to direct management practices for all definitive land areas.

5. Enter into cooperative ventures with the State (i.e., State Comprehensive Outdoor Recreation Plan), local groups, Native Corporations, and other Federal agencies to aid in providing a balanced spectrum of recreation opportunities and to minimize unwarranted duplication of effort.

6. Direct private or commercial recreational developments to private lands to the extent possible. Continue to permit commercial recreational developments on National Forest lands where they are consistent with land management plans, there is a demonstrated public need met and benefit derived from such services, and no private lands are available or suitable for development.

7. Incorporate in Forest land management plans recreational designations that include portions of representative plant and animal communities.

8. Designate as part of the National Recreation Trail System those land or water based trails which have significant recreation values.

9. Identify and protect areas that possess unusual environmental, educational, recreational, and scientific values for public study, use or enjoyment. Give attention to lake and stream systems suitable for backpack, raft/canoe trips, and rivers suitable for extended trips.

10. Include offroad vehicle use in Forest land management plans and implement to minimize adverse effects on the land and resources, promote public safety, and minimize conflicts with other uses of Alaska National Forest lands. Classify areas and trails as to whether this use is permitted in Forest plans. For subsistence purposes, snowmobile, motorboats, and other means of surface transportation are permitted subject to reasonable restrictions necessary to protect fish, wildlife, soil, and water.

11. Recognize and protect lands having special values such as boat anchorages, small boat routes, ferry and tour ship routes, recreation beaches, popular deer hunting areas, wildlife observation areas, sport-fishing streams and trails as part of the land management planning process.

12. Maintain the quality and diversity of recreational experiences and opportunities presently available on the Chugach National Forest by proposing a formally designated system of roadless recreational and wilderness areas.

13. Promote the design, operation, and maintenance of marine-related facilities. A cooperative effort with others including State and other agencies is required.

14. Use volunteers and cooperative manpower programs to the fullest extent possible to increase the level of maintenance.

15. Use interpretive services to promote energy and economic efficiency and to inform residents and visitors of recreational opportunities within the National Forest System by:

a. Reviewing and managing existing facilities to insure that only those facilities that can provide quality, energy and economically efficient service are retained or expanded;

b. Assisting the public in utilization of safe, enjoyable, energy-efficient recreation opportunities;

c. Assisting future management by increasing public understanding of complex issues involved in managing a working forest.

16. Cooperate with the State, other Federal agencies, and interest groups to provide interpretive services and recreation information for the public. Develop audio-visual and other programs that emphsize cost effectiveness and reduce emphasis on the need for staffing or high cost facilities.

17. Schedule resource development activities in areas which will not adversely impact currently utilized and other important recreation and visual resources to the extent possible.

18. When nonrecreation development must be located in areas currently used for recreation, design development to minimize adverse impacts on the recreation and visual resources of the area. In areas where primary management emphasis is on commodity development, establish standards and guidelines for mitigating adverse effects and for providing recreation opportunities where feasible and compatible with other resource objectives of the area in Forest plans.

19. In areas where Forest plans have indicated that primary emphasis is on commodity production, protect important visual values without significant decrease of commodity outputs by emphasizing full utilization of all implementation measures and techniques available to meet Adopted Visual Quality Objectives established as a result of the Forest planning process.

20. Work with other agencies on programs for improving our knowledge base involving recreation supply and demand.

21. Locate new recreation facilities to utilize public transportation systems and facilitate energy-efficient forms of recreation uses.

22. Implement management actions that result in increasing receipts to recover more of the operation and maintenance costs of charge sites and reduce competition with the private sector.

23. Recognize that recreation use radiates from communities and service centers; encourage private land and capital to develop services and accomodations to meet demands. Complement this development by facilitating the use of dispersed recreation opportunities in a radiating pattern from these service centers.

WILDERNESS

The 1964 Wilderness Act has the flexibility to allow existing uses to continue in an area if compatible with wilderness values. In addition, the Alaska Lands Act specifically authorizes a number of uses to minimize impacts on current users of the land and to provide for facilities necessary for certain types of economic development. These special provisions of the Alaska Lands Act are covered in the policy provisions of this section. The policies from the 1964 Wilderness Act as stated in Forest Service Manual 2320 apply except as amended by these Alaska Lands Act policies. Any alternative use restrictions for individual wilderness areas will be made through the Forest land management planning process and must have public involvement and support.

1. Management prescriptions for individual wilderness areas will be developed during Forest planning. Restrictions on public uses may be made in these plans with public involvement and support.

2. Reasonable conditions may be imposed on any use, if necessary, to protect soil, water or other resources from damage.

3. Airplanes, motorboats and snowmachines (during periods of adequate snow cover) and nonmotorized surface transportation methods will be allowed within a wilderness. No overall prohibitions will be imposed on these uses. However, motorized use may be prohibited or restricted in designated areas through the planning process; formal public hearings will be held on any such proposal in addition to the public involvement which develops the proposal.

4. Adequate and feasible access is given to owners of land, subsurface rights, valid mining claims or other valid occupancies which are within or effectively surrounded by a wilderness area.

5. Hunting, fishing, and trapping will continue subject to State regulations.

6. Timber will not be cut, sold, or harvested as a part of the regular timber sale program. The following types of uses may be permitted if done in a manner that minimizes impacts on the wilderness (Standards and guidelines on permitted uses of wilderness will be developed through the planning process in 1 above):

a. Salvage of beach logs if done in a manner that leaves no lasting impact on the beach or uplands;

b. Salvage timber cut as a part of some authorized use within the wilderness (i.e. clearing for a fish hatchery);

c. Fuel, shelter, or other subsistence uses if the individual does not have a suitable source equally accessible outside of the wilderness;

d. Cutting of trolling poles on an emergency basis by fishermen utilizing adjacent waters;

e. Cutting timber for use within the wilderness for authorized uses (i.e. trail maintenance, shelter construction).

7. Aquaculture projects may be authorized in a wilderness to meet the goal of restoring and maintaining fish production to optimum sustained yield levels. Cooperative fisheries planning with the State will be the basis for determining aquaculture facilities needed within wilderness areas. To the extent that opportunities are available and economically feasible, man-made facilities and treatments that would introduce new species or gene pools into a watershed will be planned for areas outside wilderness. However, all forms of aquaculture projects may be authorized in wilderness if necessary to meet the goal.

8. Privately constructed cabins or similar structures:

a. Existing valid special use permits for cabins, homesites or similar structures will be renewed unless the Regional Forester finds (following notice to and an opportunity for the permittee to respond) that the permit constitutes a direct threat or a significant impairment to the purposes for which the wilderness was established.

b. Existing cabins and related structures for which a valid permit does not exist may be issued nontransferable, renewable five-year special use permits for customary uses which are compatible with the purposes for which the wilderness was established. No permit will be issued for private recreation use.

c. Construction of new cabins may be authorized by the Regional Forester by nontransferable, five-year special use permits. The proposed cabin must be either directly related to the administration of the wilderness or necessary for an authorized activity or use where the applicant has no reasonable alternative site for constructing a cabin. No permits shall be issued for the construction of private recreation cabins. Any new cabin constructed will be the property of the United States.

d. Cabins or other structures not under permit shall be used only for official Government business: Provided, that during emergencies involving the safety of human life or where designated for public use by the Forest Supervisor such cabins may be used by the general public.

9. Existing public recreation cabins and shelters may continue to be used, maintained, and replaced. A limited number of new cabins and shelters may be constructed and maintained where necessary for the protection of public health and safety. Public use patterns will be monitored and the location and number of cabins and shelters will be adjusted to best fit the health and safety needs of the user. A recreation opportunity spectrum and public health and safety analysis will be the basis for making decisions through the Forest land management plan. Congressional committees shall be notified of any proposed addition or deletion of cabins or shelters within wilderness.

10. Guide/outfitters who on or before January 1, 1979 were engaged in adequately providing any type of visitor service shall be permitted to continue providing such services within that wilderness if consistent with wilderness purposes.

11. Existing navigation aids, communication sites, and facilities for National defense purposes, weather, climate and fisheries research and monitoring are permitted. New facilities for these purposes shall be permitted but only in accord with conditions which minimize adverse effects on the wilderness. The use of motorized access and equipment is authorized. Forest Supervisors will consult with permittees to develop procedures which will minimize impacts on the wilderness without unreasonably limiting the operation and maintenance of permitted facilities.

12. Forest Supervisors will jointly plan their wilderness areas with appropriate State agencies to resolve joint issues in fish and wildlife management, compatible use of State owned or controlled lands and to establish mutually beneficial direction.

13. Key parcels of private land will be acquired as opportunities arise through land purchase, donation, or exchange authorities. Such acquision will be on a voluntary basis.

14. Guidelines will be developed in Forest land management plans for the Forest Service use of motorized equipment in wilderness. The Forest Service will minimize impact of its own activities on wilderness and the experience values of the visitor.

15. The Forest Service shall permit the continuance of existing uses and the future establishment and use of temporary campsites, tent platforms, shelters and other temporary facilities and equipment directly and necessarily related to the taking of fish and wildlife. A revokable special use permit will be issued to allow such occupancies. The Regional Forester may determine, after adequate notice, that the establishment and use of new facilities or equipment would constitute a significant expansion of existing facilities or uses which would be detrimental to the purposes for which the Wilderness was established including its wilderness character. Forest land management plans will identify the location and levels of such use as of December 2, 1980 and the need to expand or restrict such use.

16. Implement "no trace" woodsmanship and "pack-it-in/pack-it-out" programs for all wilderness visitors.

More specific direction on the policies noted above can be found in Forest Service Manual 2320, R-10 Supplement.

CULTURAL RESOURCES

1. Manage cultural resources as a non-renewable National heritage:

    a. Assure cultural resource specialists input to project planning at the earliest possible time.

    b. Evaluate cultural resources for inclusion in the National Register of Historic Places.

    c. Forest Service plans and programs affecting cultural resources need to contribute to the preservation and enhancement of cultural resources and assure access to sites or resources important to traditional Native religious practices, rites or ceremonies.

    d. Avoid adverse effects where possible, or develop mitigation alternatives in consultation with the State Historic Preservation Officer and Advisory Council on Historic Preservation, after obtaining and considering input from affected Native groups.

2. Encourage and cooperate with qualified museums, universities, and private research institutions in the identification, evaluation, and interpretation of cultural resources.

3. Provide cultural awareness opportunities for all Forest Service personnel to illustrate and foster an awareness and understanding of the variety, complexity, and adaptability of prehistoric and historic Native cultures of the Region.

4. Cooperate with the State and Native owners of cultural resources to develop programs for public interpretation of and education about cultural resources and their management on National Forest System lands.

5. Develop cooperative agreements with Native groups to protect and manage cultural resources.

TRANSPORTATION

1. Transportation Resource Management

a. The Forest Service will employ a wide range of choices in methods for managing roads. The following goals will be considered:

1) A range of recreational experiences will be provided from pedestrian-only to full-use motorized vehicles.

2) The need for dispersal of people to accomodate fishing and hunting and non-consumptive use of wildlife.

3) The long-term land management objectives of the accessible land area.

b. The Forest Service endorses cooperative use of the Forest Development Road System for hauling of commercial products recognizing that user conflicts will occur in some situations. The commerical user hauling from other than National Forest lands is expected to assume a share of the original construction and maintenance costs of the roads used. The costs will be proportioned on the basis of the use of the hauler and the total use of the road.

c. Conservation of petroleum energy supplies will be considered in the location, design, construction, and operation of the transportation system.

d. Roads which are not part of the permanent transportation system will have vegetation established within 10 years following termination of the timber sale contract or other permit or lease under which it was built.

e. Roads will be constructed in the most cost efficient manner, considering other resource values. The Forest Highway Program and joint financing of construction will be used as methods to construct facilities to a higher standard where appropriate.

2. Transportation and Utility Corridors

a. Transportation and utility corridor planning and development will be in compliance with the policies and criteria established in this and other resource elements. Transportation facilities constructed by the Forest Service will meet standards required for the use, management and protection of the National Forest, considering safety, costs of transportation (including operation and maintenance), and impacts on other resources.

b. Transportation and utility corridor planning and development will be coordinated with the Canadian, Federal, State and local government agencies as well as private land owners. Transportation connections by the Forest Service will not be made between communities or emerging communities without the participation and collaboration of State and local governments, communities and affected individuals.

c. The Forest Service acknowledges that the State of Alaska has identified several natural transportation corridors in Southeast and Southcentral Alaska for possible land transportation facilities. The primary function of these corridors is the transportation of people, goods and services between communities. Because the corridors parallel the major rivers and marine routes of the area, high fisheries, wildlife, estuarine, recreational, visual and other values are affected. Data collection to define the extent of conflicts with the construction and usage of these corridors is needed. Consideration of the allocation of lands along these corridors for transportation and utility purposes is required in Forest planning. Allocated transportation corridors will be included in the Forest Highway System as appropriate.

d. Transportation planning will be integrated with present and future land management plans to the extent feasible. Forest plans will show existing and anticipated forest arterial and major collector corridors. Plans will identify, as far as possible, what modes of transportation will be developed for a given area. Water transportation modes and anticipated land-water transfer facilities will be specified where logging activities, ferry terminals, public access, barge ramps, and similar facilities are intended. The likely corridor locations for other transportation facilities will be subsequently developed.

e. Approved transportation and utility corridor proposals and plans will be integrated with land management plans at all planning levels to utilize each corridor resource to the greatest extent possible. Corridors for future utilities usage will follow land transportation routes to the extent practicable and appropriate. Electrical transmission facilities constructed and maintained without road access need not follow road corridors.

f. Existing transportation corridors are recognized as the combination of land, water, and air transportation modes which provide transportation access between communities and other developed use areas in Alaska. Existing utility corridors are those land and water based routes over which pipelines, electrical transmission lines, or communication lines traverse where utilities are being provided from the source to a community or major user or between communities.

LANDS

1. Work actively with State and local governments for full compliance with the intent of the Statehood Act. To the extent possible, fulfill the needs for community expansion and recreational areas as well as for prospective community centers.

2. Do not authorize uses that can reasonably be accommodated on other lands.

3. Allow existing isolated hunter cabins, recreation residences and residence permits unless required by the terms of the permit or unless there is a demonstrated higher public need. Continue existing recreation residences and residence permits located in approved groups subject to the provisions of the permits.

4. Administer outfitting and guiding activities associated with National Forest lands under the occupancy permit system with consultation and coordination with appropriate agencies.

5. Evaluate decisions on occupancy permits for compatibility with long-term public interest based on a consideration of environmental values, economic feasibility and a determination of social and/or economic benefit. Do not approve permits solely to create business opportunities.

6. Prepare a landownership adjustment plan. Emphasize improved land ownership patterns and management opportunities resulting from State and Native conveyances. Consider acquisition of isolated land in other ownerships at critical locations in light of possible mutual benefit to landowners and the Forest Service.

7. Review and adjust special use fees on a planned basis to comply with the Federal Land Policy and Management Act.

8. Survey and maintain boundary lines resulting from State and Native conveyances and boundary lines presenting significant potential management problems on a planned basis. Monitor unsurveyed boundary lines to minimize future problems and assist in establishing survey priorities.

9. Identify areas suitable and representative of various ecosystems as part of a Research Natural Areas/Ecological Reserves system. Select each Research Natural Area to represent the greatest number of ecological and geological type needs possible, locating sites on lands already withdrawn when appropriate, by following in each Forest Supervisor's Area the sequential planning and selection steps contained in the implementation plan for establishing Research Natural Areas/Ecological Reserves (Appendix B).

FOREST PEST MANAGEMENT

Insect and Disease Management

1. In general, native insect outbreaks or disease conditions in old growth forests will be allowed to run their course. Tree losses will be accepted, yet harvesting flexibility will be maintained to take advantage of timber salvage opportunities. Insect suppression may be justified in high quality, old growth stands that cannot be salvaged immediately or that lie near recreation areas and communities where scenic values are high.

2. From an insect or disease standpoint, logging in old growth timber should be concentrated in the stands that are least able to recover from insect or disease damage and where the greatest losses, therefore, occur.

3. The primary approach to insect and disease management for second growth should be prevention, augmented by suppression. Prevention consists largely of stand manipulation to maximize effects of natural pest mortality factors. An example is the design of smaller clearcuts on a staggered harvesting schedule. This cutting pattern reduces the area of single-aged, contiguous stands, conductive to the buildup of certain insect populations. Another example is the removal of all dwarf mistletoe-infected western hemlock within harvest units.

4. Forest insect and disease detection and evaluation surveys will be conducted and recommendations will be provided on appropriate methods of preventing or otherwise managing insect or disease problems. This service can include field evaluations, written reports and formal and informal training.

Pesticide Use

1. Pesticides will be used only when resource management objectives are best accomplished by this means. When technologically available and economically feasible, biological, cultural or integrated techniques will be used in place of or in association with pesticides. An example is the reliance on mechanical control exclusively or mechanical brush control supplemented with herbicide treatment of cut stems as opposed to full reliance on herbicide application alone.

2. Biological, environmental and economic costs and benefits of pesticide use are to be identified and weighed prior to Forest Service application of pesticides on National Forest land. Similar assessments will be requested from prospective State, other Federal, grantee, permittee and licensee applicators on National Forest land. Environmental factors to be weighted in pesticide use decisions are likely adverse effects to non-target plants, wildlife, fish, water supplies and human safety. As a minimum, no pesticide application on the National Forests should be allowed to reduce wildlife or fish habitat or populations below levels determined jointly by the Forest Service and other agencies having management jurisdiction.

3. Pesticides for other than "housekeeping" purposes will be employed only after such use has been documented in an environmental impact statement or environmental assessment and recommended for approval by the Integreated Pest Management Working Group.

4. Environmental impact statements dealing with pesticide projects will be available for public review. When environmental statements are not prepared, the availability of the environmental assessments will be announced.

5. When pesticide use is judged necessary, selection and application will be based on the following guidelines:

a. Those application methods and formulations will be used that are most effective in suppressing the pest, most specific to the target organisms and least harmful to non-target components of the environment.

b. In operational pest management programs, only those pesticides will be used that are registered in accordance with the Federal Insecticide, Fungicide and Rodenticide Act, as amended, except as otherwise provided in regulations issued by the Environmental Protection Agency or the Department of Agriculture.

c. Application will be restricted to the minimal effective dosage that, when precisely applied to the target area at optimum times, will accomplish the resource management objectives.

6. Provision will be made for review and approval of pesticide use proposals by concerned Federal, State and local agencies, where appropriate. Required legal clearances will be obtained.

7. Pesticides will be handled, stored and disposed of in accordance with Federal, State and local laws and regulations.

8. Forest Service investigations will be conducted to evaluate the effectiveness and environmental safety of new or improved pest management tools and methods to maintain a state-of-the-art capability for pesticide management.

9. Training will be provided for all personnel who handle pesticides or who supervise their use. Training of personnel involved in pesticide use management is basic to accomplishing a safe, effective and efficient job. Commitment can be obtained only when personnel recommending, supervising or using pesticides understand the complexity of the task. Only qualified personnel will recommend and use pesticides. Qualification standards will be equal to or greater than those required by Federal and State training and certification plans. Personnel recommending, supervising or using restricted pesticides will be certified and/or licensed as required by the State.

10. Where endangered or threatened species habitat is involved, pesticides will be used only after it has been determined, in conjunction with Federal and State wildlife management specialists, that such use will not adversely affect either the species or their critical habitats.

11. Monitoring programs will be conducted to determine whether the pesticide has been applied safely and restricted to the target area. Monitoring to quantify the environmental effects of a pesticide being developed for forestry use may be required to secure registration of the material. An environmental assessment should identify the potential for adverse environmental effects and the degree and complexity of monitoring required.

PROTECTION

1. In the majority of cases, it is the responsibility of Forest users to provide for their own welfare and safety while working in, or visiting, the generally undeveloped portions of the Forests. Assist users in assuming this responsibility through programs of public information and education.

2. In the event of an emergency involving an imminent threat to life and property, render all available assistance.

3. In the event of a major disaster, assist State and local governments in carrying out their responsibilities to alleviate suffering and damage. To effect such assistance, develop a coordinated disaster plan with other agencies responsible for disaster relief.

4. Legal responsibilities for search and rescue lie with the U.S. Coast Guard and the Alaska State Troopers. When emergencies involving search and rescue occur on National Forest lands, upon request from the above agencies, assign personnel to assist. Cooperate with Federal and State agencies and local governments in preparing search and rescue plans that define the Forest Service role in assisting search and rescue operations.

5. Through public information programs, explain the impact of vandalism and encourage more positive use of the Forest, and more considerate treatment of others.

6. Cooperate with Alaska State Troopers for enforcement of State laws for protection and safety of Forest users and their property. Utilize trained Forest Officers to enforce Federal laws and regulations for protection of National Forest resources and property.

7. Participate with the State of Alaska and other cooperators in development and implementation of the Alaska Avalanche Warning System and other related avalanche control activities.

CHAPTER VI - MONITORING AND EVALUATION

OVERVIEW

Monitoring consists of collecting information from preselected sources to measure the effects of Forest Service activities. The information collected during monitoring will reflect the overall status and inventory of the Region's resources and effects of management practices. The monitoring system is designed to indicate if implemented Forest Service programs are meeting the plans objectives.

Evaluation activities are initiated when an analysis of monitoring data indicates that effects of Forest Service programs are not within the expected ranges. Evaluations will determine the significance of deviation and the need for change in management direction.

Monitoring, evaluation, and adjustment activities, while related, are separate and sequential entities, with each activity "driving" the next. The initial activity is monitoring, which identifies departures or deviations from expected outcomes. When analysis indicates that deviations have occurred, evaluation activities are triggered. Evaluation will investigate the cause of the deviations; determine the impact of deviation; and propose appropriate corrective action. Adjustments to Forest Service plans and programs will be based on evaluation results. The significance of evaluation results will determine how adjustments will be made. Changes will be made by amending or revising Forest Plans or the Regional Plan using the National Environmental Policy Act (NEPA) process.

Information Sources and Responsibility

Regional programs and activities are implemented through Forest Plans. Implementation of these plans will be monitored, evaluated and summarized to assess the Regional situation. The Forest will monitor and evaluate the plans and results for the various information portions for which they are assigned responsibility. The Regional Forester will require periodic reviews examining the degree to which Forest Supervisors are implementing management direction contained in the Regional Plan; how well the Forest Supervisors' monitoring and evaluation systems are operating; and the appropriateness of adjustments and revisions implemented as a result of Regional monitoring and evaluation.

Affecting Change in the Regional Plan

Changes in the Regional Plan will be accomplished in one of two ways; (a) amendments; or, (b) revisions. The decision as to the method of change is dependent upon scope and significance of the deviation as determined by the evaluation. Changes will be made in accordance with the National Environmental Policy Act process.

Evaluation results will also be used to determine research needs to improve resource management and the Regional monitoring and evaluation systems.

Monitoring Actions

The table on the following pages identifies the components of the Regional Plan monitoring process that will be implemented to determine: how well objectives are being met; and how closely management standards and guidelines have been applied.

Frequency of Monitoring

The time interval at which the various information items are measured is variable. For example: information items may be obtained at interagency coordination meetings which take place throughout a given year; information items may be obtained through attainment reports some of which are prepared on a quarterly basis, and some on a yearly basis. The same variability in timing applies to information items resulting from management reviews, environmental analysis, and the other sources of information identified in the following table. It is not practical to establish a set frequency for each monitoring category as the timing associated with the sources of information is variable.

Precision/Reliability of the Monitoring Process

The monitoring system is designed to indicate, after evaluation, if implemented Forest Service programs are meeting plan objectives, and to identify where amendment or revision is warranted. The process outlined in the following pages is more than adequate to analyze the Regional management situation on a recurring basis; and identify changes or adjustments needed in each of the monitoring category areas.

Evaluation Reporting Date

In cases where information items are obtained from sources at multiple intervals throughout a given year, continuous evaluations and interim reports will be completed. Upon completion of Forest Plans, each monitoring category will have evaluation reports completed on a yearly basis within 60 working days of the end of each Fiscal Year.

MONITORING PROCESS

Monitoring Category	Information items to be measured	Purpose/Reason for measurement	Source of information
1. Program Standards and Guidelines	a) Forest adherence to Regional Plan standards and guidelines.	a) To insure consistent Forest use of the standards and guidelines to improve the reliability of subsequent evaluations.	Regional Management and Activity reviews. Project environmental and evaluation reports. Forest plan monitoring results.
	b) The applicability of developed standards and guidelines in terms of social, economic, and environmental effects caused by implementing them to include their impact on adjacent land and resource managers and communities.	b) To determine if the anticipated desirable effects associated with the established standards and guidelines are being realized.	Reccurring interagency meetings facilitated through cooperative agreements and Memoranda of Understanding.
2. Program Outputs	a) Short-term output attainment (first 5 years of the planning period).	a) To identify output targets that need to be adjusted through negotiation with the Chief during the 1985 RPA update. To allow evaluation of planning precision in comparing actual to planned attainment.	National Forest System and State and Private Forestry Management Attainment reports. Forest plan capability assessments. State Forest Resource plans.
	b) Long-term output projections (after 5 years to the end of the planning period).	b) To define the Regional long-range capability in outyear planning horizons, and thereby improve the reliability of the RPA 1985 update.	
3. Program Costs	a) Total budget expenditures for Forests, State and Private Forestry and the Regional Office.	a) To allow evaluation of actual expenditures versus predicted expenditures and determine reliability of cost effective selections/decisions made in Regional and Forest plans.	Program Accounting and Management Attainment Reporting System (PAMARS). Forest plan cost analysis and the results of Forest Monitoring Programs.

MONITORING PROCESS

Monitoring Category	Information items to be measured	Purpose/Reason for measurement	Source of information
	b) Costs of selected activities by selected Management Areas.	b) To determine the precision of management practice cost predictions.	Forest plan projected and actual costs for Management Area.
4. Mitigation Activities	a) Application of mitigation measures prescribed by and/or associated with each selected issue resolution.	a) Assure consistent use of prescribed mitigation measures to allow for greatest opportunity for social, economic, and physical/biological effect modifications; and provide greater reliability in subsequent mitigation measure evaluations.	Forest plan monitoring results. Management and Activity Reviews.
	b) The social, economic or physical/biological effect which was to be corrected or offset by the various mitigation measures.	b) Applicability of identified mitigation measures in achieving predicted desirable result.	Forest plan monitoring programs.
5. Research Program	a) Application of research results.	a) To determine if research has helped solve problems. To determine if NFS and S&PF managers are utilizing research results.	Research Attainment Reports Forest Plan prescriptions. Regional/Forest Plans.
	b) Changes in emphasis in research programs.	b) To determine if research programs and NFS/S&PF perceived research needs are complementary.	Forest Plan monitoring activities/results. RPA objectives for research. Research Work Unit descriptions
6. State and Private Forestry Program.	Program accomplishments and costs.	To allow evaluation of how well program objectives were met. Plan future program budget direction and accomplishment. To identify changes in program emphasis and funding as needed.	State and Private Forestry Accomplishment Reporting System. General Program Reviews Interagency Coordination meetings. State Forest Resource plans.

APPENDIX A

GLOSSARY

208 Planning - The section of the Clean Water Act, amended in 1977, that directs development and implementation of Area-wide waste treatment management plans.

Alaska Lands Act - Formerly known as the Alaska National Interest Lands Conservation Act (ANILCA) of 1980.

ANCSA - Alaska Native Claims Settlement Act of 1971.

ASA - Alaska Statehood Act of 1959.

Account - Term used in the Southeast Alaska Area Guide for organizing discussion of management direction under topic headings. Resource accounts were: Soil, Water, Fish, Wildlife, Estuaries and Wetlands, Minerals and Fossil Fuels, Recreation, Wilderness, and Cultural Resources. Administrative and Support accounts were: Transportation, Land Ownership and Occupancy, Forest Insect and Disease Management and Pesticide Use, and Public Safety and Protection.

Aerial Harvest Systems - Examples are helicopter and balloon logging.

Age Class Diversity - The amount of age class distribution within a stand. Stands with low age class diversity would be composed of trees approximately the same age. Stands with high age class diversity would contain trees of many ages.

Air Quality Increments - The maximum allowable increases in pollutant concentrations as defined in Section 163 of the Clean Air Act.

Airshed - A geographical area, the whole of which, because of topography, meteorology, and climate, shares the same air.

Alevins - Salmonid embryos in the streambed gravel with the yolk sac still attached (prior to emergence from the gravel).

Allowable Sale Quantity - The quantity of timber that may be sold from the area of land covered by the Forest plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the average annual allowable sale quantity. (The allowable sale quantity applies only to the lands determined to be suitable for timber production and to the utilization standards specified in the land and resource management plan.)

Amenity Output/use - An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Examples are sport fish and wildlife use, dispersed recreation.

Anadromous - Refers to those fish -- usually salmonids -- that spawn (some also rear) in freshwater and spend part of their lives in saltwater.

Appropriate System of Silviculture - See optimum method of harvest. A judgmental response to a condition to be achieved.

Aquaculture - As used in this Plan, aquaculture encompasses various methods of propagating aquatic species and includes hatcheries, incubation channels, spawning channels, fishways, etc.

Best Management Practice (BMP) - A combination of practices determined by State or Federal resource agencies to be the most effective means of preventing harm to the environment and furnishing guidelines for making preferred prescriptions and management actions.

Biological Growth Potential - The average net growth of wood fiber attainable in a fully stocked natural area of Forest land.

Capability - The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices such as silviculture or protection from fire, insects and disease.

Clearcutting - The removal, in a single cut, of all trees larger than saplings in the stand. Natural or artificial regeneration may be established before or after cutting. Areas clearcut may occur in blocks, patches, or strips.

Climax Forest - A plant community representing the culmination of natural succession and growth stages.

Climax ecosystem - The final or stable biological community in a developmental series. Self-perpetuating and in balance with the physical habitat.

Commercial Forest Land (CFL) - Is producing or is capable of producing crops of industrial wood. This includes areas suitable for management and capable of producing in excess of 20 cubic feet per acre of annual growth. All Commercial Forest lands are subdivided into the following components:

a. Standard - The component of the commercial forest land on which timber can be logged with adequate protection of all forest resources under the usual provisions of a timber sale contract.

b. Special - The component of the commercial forest land recognized as needing specially designed treatment of the timber resource to achieve landscape or other key resource objectives.

c. Marginal - The component of the commercial forest land requiring excessive development costs, having low product values or having resource protection constraints making the stand inoperable.

Commercial Thinning - Thinning is an intermediate step in even-aged management. It is a cutting made in an immature stand primarily in order to accelerate diameter increment but also, by suitable selection, to improve the average form of the trees that remain without permanently breaking the canopy. It can also be used to increase forage for some species of wildlife. Commercial thinning produces merchantable material at least to the value of the direct costs of harvesting.

Commodity Output - A good or service that is normally bought and sold in a market after at least one stage of production before final consumption. Examples are timber, developed recreation, water, etc.

Compartment - A unit of forest area delineated for purposes of orientation, administration and silvicultural operations. It is usually identified on the ground by physical boundaries. A compartment consists of a collection of contiguous stands of timber and other vegetation. It is used for sampling vegetation types, characterizing its condition and other features, and is a file unit for storage and retrieval of timber and other multiple-use data. The perimeter boundary of a compartment should be regarded as being permanent.

Corridor - See Wildlife Corridor and Transportation Corridor.

Created Opening - Openings in the forest created as the result of even-aged silviculture through clearcutting, group selection or shelterwood regeneration systems.

Critical Landscapes - Landscapes that are vulnerable to some form of degradation resulting from natural processes or management actions. Examples are very steep slopes, alluvial fans and floodplains that are vulnerable to erosion.

Crown Closure - The amount of cover provided by tree crowns over a given area, expressed in percent.

Cultural Resources - Any evidence of mankind's activities and behavior; includes data from archeology, architecture, ethnology, and history.

Deferred Forest Land - Productive forest lands withdrawn from cutting until further classification has been determined, i.e., areas of potential resource protection.

Developed Recreation - Outdoor recreation requiring significant capital investment in facilities to handle a concentration of visitors on a relatively small area. Examples are ski areas, resorts and campgrounds.

DIB - Diameter inside bark.

Dispersed Recreation - Outdoor recreation use occuring outside a developed recreation site; includes such activities as scenic driving, hunting, backpacking, and boating.

Diversity of Habitat - Implies habitats that are different rather than the same over large areas. For example, some species of wildlife require old growth forests, others thrive on fresh clearcuts or younger even-aged stands. Diversity is the proper mix of these habitats to meet the objectives set.

Economically Viable - A project, program, or other activity which meets or exceeds a desirable rate of return or benefit cost ratio.

Element - Term used in Regional Plan to replace the word "account" to organize standards and guidelines.

End Haul - In roadwork, removing excess excavated soil lengthwise along the road instead of casting the soil to the side.

Estuarine Management Unit (EMU) - That unit of land and water designated through the interdisciplinary process to receive special management consideration for wildlife, waterfowl and fish habitat protection.

Even-Aged Management - Even-aged management produces stands in which all trees are of about the same age (a spread of 10 to 20 years is considered one age class). Each stand is mapped and recorded as a separate age class and sustained yield regulation is achieved by control of the area in the various age classes (stands). Regeneration is obtained at one distinct time in the life of the stand, through clearcutting, shelterwood cutting, seed-tree cutting, or variations of these methods.

FORPLAN - The automated data processing software featuring a linear programing schedule model which may be used in the Forest planning process to assist managers in allocating resources and scheduling resource activities for a geographically defined area.

Fish Habitat Management Unit (FHMU) - An area of stream and associated bankside habitat identified during the interdiscplinary process as having fish values of such major importance that timber management practices and other land use activities will be prescribed to meet the management goals for fish habitat.

Fish and Wildlife Habitat Capability - The capability of an area to produce various amounts of fish and wildlife.

Floodplain - The lowland and relatively flat areas joining inland and coastal waters, including debris cones and floodprone areas of offshore islands, including at a minimum, that area subject to a 1-percent (100-year recurrence) or greater chance of flooding in any given year.

Forest Fertilization - The addition to forest soils of mineral or organic fertilizers to increase soil nutrients needed for tree and other plant growth. Fertilization normally boosts growth of forest plants.

Forest Highway Program - This program is authorized under the Surface Transportation Act of 1978. The program is intended to coordinate the needs of the State and Forest Service with the Federal Highway Administration to provide highways through forest lands. Following construction by the Forest Service, the State assumes operation and maintenance responsibility, and usually includes the route as a part of the State Secondary Highway System.

Group Selection - Group selection cutting involves the removal of selected trees of all size classes in groups of a fraction of an acre up to two or three acres in size. Single tree selection may occur simultaneously in the area between groups. Regeneration occurs in the groups under conditions similar to those found in small clearcuttings. A strip clearcut modification could also be made.

Guideline - Any issuance which assists in determining the course of direction to be taken in any planned action to accomplish a specific objective.

High Lead Cable Logging - A method of transporting logs to a collecting point by using a powered cable, passing through a block fastened high off the ground, to lift the front end of the logs clear of the ground while they are in transit.

Individual Tree Selection - The removal of selected trees of all size classes on an individual basis. Regeneration is established under the partial shade of the overstory canopy after each cut. This could also include the salvaging of individual trees.

Inoperable Timber - Timber which cannot be harvested because of potential resource damages, economic infeasibility, or physical limitations and inaccessibility.

Integrated Pest Management - A process in which all aspects of a pest-host system are studied and weighed to provide the resource manager with information for decisionmaking. Integrated pest management is, therefore, a part of forest or resource management.

Interdisciplinary Team (IDT) - A group of individuals representing different areas of knowledge and skills focusing on the same task, problem or subject.

Key Habitat Areas - Areas that are more productive because of high quality spawning and/or rearing areas for fish, or because of high browse density and protection for animals such as deer.

Logging Debris - Usually woody debris of various sizes that are generated through timber harvest practices. To fish habitat debris can be either harmful or beneficial.

MARS - Management Attainment Reporting System wherein those targets attained by management -- i.e., volume of timber cut -- are reported by the Forests.

MMBM - One million board measure.

MUSYC - Multiple - Use - Sustained Yield Concept - A linear programing computer model designed to schedule wildland multiple-use resource outputs.

Management Concern - An issue or problem requiring resolution, or condition constraining management practices identified by Forest Service management and/or staff.

Management Indicator Species - Those wildlife and fish species, or species assemblages, that are selected to be the focus of planning and management attention on a specific area and/or will be significantly affected by management activities or programs.

Management Prescriptions - Specifically sets forth policies and standards under which management objectives will be carried out. Commonly consists of a comprehensive statement in words, maps, illustrations and other media explaining the means by which objectives can be carried out in pertinent managment areas.

Mean Annual Increment (MAI) - The total increment up to a given age divided by that age.

Mining - Includes all operations for the extraction of mineral resources -- underground and open pit mines, rock and sand and gravel borrow, etc.

Monitoring - Following a course of events to determine what changes occur as the result of an action.

Multiple Entry - Entering an area more than once during a given rotation period for the purpose of harvesting timber.

NEPA - National Environmental Policy Act of 1969.

NFMA - National Forest Management Act of 1976.

Non-Commercial Forest Lands - Land with more than 10 percent cover of commercial tree species but not qualifying as Commercial Forest Land.

Non-Forest Lands - Land with less than 10 percent cover of commercial tree species.

Non-Point Source Pollution - Pollutants arriving from an area-wide, non-discernable source. Usually are diffuse in nature and result from naturally occurring events such as precipitation, seepage, runoff, etc., reacting with man's activities. This includes sources from agricultural and silvicultural activities.

Non-Standard Harvest Operability - Timber which cannot be harvested with standard equipment and techniques, but would require other systems including balloon, helicopter, and skyline over 2600 feet in length.

Non-deficit Sale - A timber sale offering which, under current rules of appraising timber, displays a residual value for stumpage at or above base prices, taking into consideration expected development costs, margin for profit, and risk for the operator.

Nonconsumptive use - Activities during which the objects of the activity are observed but not consumed. Examples would be visual quality, wildlife viewing, and wilderness use.

Normal Harvest Operability - Timber which can be harvested with standard equipment and predominant techniques now in use. These include highlead, A-frame, skyline less than 2600 feet, and tractor.

Old Growth Sawtimber - Commercial forest stands more than 10 percent stocked where the plurality of stocking is in sawtimber trees (11 inches or larger in diameter) more than 150 years old.

Optimum Method of harvest - A professional judgment for the cutting methods used to harvest an existing stand and regenerate a new one, (i.e. clearcutting, shelterwood cutting, seed-tree cutting, and their many variations, for even-aged silvicultural systems; single tree or group selection and other forms of partial cutting for uneven-aged silvicultural systems.) The optimum method is primarily determined by an analysis of the silvicultural characteristics of the species involved, management objectives of the area, and economics.

Output - The goods, end products, or services that are purchased, consumed, or utilized directly by people. Goods, services, products, and concerns produced by activities which are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. A broad term for describing any result, product, or service that a process or activity actually produces.

Partial Cutting - All methods of tree removal which result in taking only part of a stand.

Pesticide - (1) Anything intended to destroy or repel pests, or (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Pests - Plants and animals in specific situations where the land manager determines they are detrimental to achieving resource managment objectives.

Potential Yield - (Pre-1980 terminology). The maximum harvest that can be planned on a forest from the regulated forest land to achieve the perpetual sustained yield harvesting level with intensive forestry practices considering the productivity of the land, conventional logging technology, standard silvicultural treatments, and interrelationships with other resource uses and the environment.

Potential Yield - The potential yield for the next ten years is the maximum harvest that could be planned to achieve the optimum perpetual sustained yield harvesting level attainable with intensive forestry on regulated areas, considering the productivity of the land, conventional logging technology, standard cultural treatments and interrelationships with other resource uses and the environment.

Pre-roading - Advanced road construction to facilitate development of future timber sales, or for other resource management purposes, usually done under public works contract. Development costs, in the case of subsequent timber sales, are recaptured in receipts to the treasury because of higher stumpage prices paid as a consequence of lower development costs.

Precommercial Thinning - A type of tree thinning that particularly favors the dominant or selected dominants more or less evenly distributed over the stand by removing a varying proportion of the other trees.

Prescribed Burning - A fire burning under specified conditions which will accomplish planned objectives in strict compliance with an approved plan. While ignition may be either planned or unplanned, the conditions under which the burning takes place and the expected results are specific, predictable, and measurable.

Prescriptive Plan - A detailed plan made for a land management action such as a timber sale. Includes imposed restrictions for streamside strips, location of roads, etc.

Public Issue - A subject or question of widespread public interest relating to Forest Service management identified through public participation.

RAM - An acronym for Resouce Allocation Model. A computer program designed to provide an analytical framework for scheduling long range resource outputs.

RPA - Forest and Rangeland Renewable Resources Planning Act of 1974. Calls for a periodic assessment of the renewable resources of the Nation.

Recreation Opportunity - The availability of a real choice for recreationists to participate in a preferred activity within a preferred setting, in order to realize those satisfying recreation experiences which are desired.

Recreation Opportunity Guide (ROG) - A system that inventories National Forest recreation opportunities and presents the resulting information to the public.

Recreation Opportunity Spectrum (ROS) - The framework for planning and managing the recreation resource, within which, lands are identified for their ability to provide recreation experiences in one of the six classes along a continuum from primitive to modern-urban. Each class is defined in terms of the degree to which it satisfies certain recreation needs based on area size, the extent to which the natural environment has been modified, the type of facilities developed, and the degree of outdoor skills needed to enjoy the area. The six classes are: (1) primitive -- representing the most remote, undeveloped and inaccessible opportunities, (2) semi-primitive non-motorized, (3) semi-primitive motorized, (4) roaded natural, (5) rural, and (6) modern-urban -- representing the most developed, accessible and convenience-oriented experience available.

(1) Primitive ROS Class - Generally includes those areas out of sight and sound of human activities and greater than three miles from roads open to public travel. The areas are larger than 5,000 acres in size with opportunities for a high degree of interaction with the natural environment, challenge, risk and the use of outdoor skills. Because of their remoteness, users of these areas are normally required to stay overnight.

(2) Semi-Primitive Nonmotorized ROS Class - Generally includes those areas greater than 1/2 mile and less than three miles from roads and trails open to motorized use. The areas are generally larger than 2,500 acres in size with limited opportinities for isolation from the sights and sounds of humans and a high degree of interaction with the natural environment. Moderate challenge, risk, and the opportunity to use outdoor skills are factors in this environment.

(3) Semi-Primitive Motorized ROS Class - Includes areas less than 1/2 mile from primitive roads and trails open to motorized use. Areas are generally larger than 2,500 acres in size and characterized by a predominantly unmodified natural environment with minimum evidence of sights and sounds of humans. Concentration of users is normally low. Road access is not maintained in these areas.

(4) Roaded Natural ROS Class - Include areas less than 1/2 mile from roads open to public travel, railroads, major power lines and within resource modification areas. Areas in this class generally vary in size from 100 to 2,000 acres and are characterized by predominantly natural environments, with moderate evidence of sights and sounds of humans. Concentration of users is moderate to low.

(5) Rural ROS Class - Includes those areas within small communities, developed campgrounds, developed ski areas, and administratives sites. The areas are generally smaller than 500 acres in size and are characterized by substantially modified natural environments. Modifications are primarily to enhance specific recreation activities. Sights and sounds of humans are readily evident. Concentration of users is moderate to high.

(6) Modern-Urban ROS Class - Areas of varying sizes characterized by substantially urbanized environment. The background may have elements of a natural environment. Renewable resource modification and utilization practices are common. Vegetative cover is often exotic and manicured. Sights and sounds of humans predominant. Large numbers of visitors can be expected both on-site and in nearby areas.

Regulated Harvest - The regulated harvest includes any volume included in calculations of the allowable sale quantity which is harvested from suitable commercial forest land. Regulated harvests are therefore those calculated to systematize the production of forest products under principles of sustained yield on an annual or periodic basis.

Release of Conifers from Overtopping Vegetation - Freeing a tree or group of trees from more immediate competition by cutting or otherwise eliminating growth that is overtopping or closely surrounding it (them).

Reserved Forest Land - Productive forest land withdrawn from cutting by statute, administrative regulation, or by designation into land use approved by the Regional Forester.

Retention Factor - The amount of commercial forest land removed from the timber base to protect other resource values. These factors are allowances available to draw upon when meeting other resource needs and are not fixed policies.

Riparian ecosystems - Includes the stream channel and that area around streams and lakes which can influence the aquatic environment. Riparian ecosystems are especially important where resting, nesting, and feeding birds and animals are concentrated.

Rotation - The planned number of years (approx. 100 years in Alaska) between the formation of regeneration of a stand and its final cutting at a specified stage of maturity.

Salmonids - In this report the five species of Pacific salmon and cutthroat, rainbow and steelhead trout, Dolly Varden, grayling and lake trout.

Salvage Cutting - Cutting primarily to utilize dead and down material and scattered poor risk trees that will not be marketable if left in the stand until the next scheduled harvest.

Salvage Cutting - Individual Trees - Salvage cutting entails the harvesting of individual dead or dying trees (trees not expected to live 20 years). It may include trees damaged by road construction and those adjacent to roads.

Sedimentation - Addition of fine organic or inorganic material to a stream channel. Usually that portion remaining in the streambed gravel.

Seed-tree Cutting - Essentially the same as clearcutting, except that a few of the better trees of the desired species are left scattered over the area to provide seed for regeneration. These trees may or may not be harvested after the new crop is established.

Sensitive Species - Those species which: (1) have appeared in the Federal Register as proposals for classification and are under consideration for official listing as endangered or threatened species, (2) are on an official State list, or (3) are recognized by the Regional Forester to need special management in order to prevent the need for their placement on Federal or State lists of threatened or endangered species.

Shelterwood - Shelterwood cutting involves the removal of all trees in a series of two or more cuts over a period of not more than 20 years. In the first harvest the most vigorous, windfirm, cone-producing trees are left. Regeneration occurs between the first and last cuts under the cover of a partial canopy. As soon as regeneration is established, a final cut is made to remove the remaining overstory and permit the new stand to grow and develop in the open. For timber production purposes, shelterwood cutting is used for situations where the temporary retention of seed-bearing trees or partial shade will improve the reproduction over that obtained from a one-cut removal. However, other forms of shelterwood cutting could be used to achieve other purposes, such as improved visual appearance.

Sidecast - To doze or blade waste soil over the downhill side of a road during construction.

Silvicultural Systems - A silvicultural or management system is the entire process by which forests are tended, harvested, and replaced. It includes all cultural practices performed during the whole life of the stand, such as regeneration cutting, thinning, and improvement cutting. There are only two forest management systems available, even-aged and uneven-aged, and each results in the production of a forest of distinctive form.

Silviculture - Generally, the science and art of cultivating (i.e., growing and tending) forest crops. More particularly, it is the theory and practice of controlling the establishment, composition, constitution, and growth of forests.

Site Preparation for Planting - A practice in which the canopy, ground cover, and soil are modified with the intent of rendering them suitable for planting trees for the purpose of regenerating the site.

Species Habitat Relationships - The Fish and Wildlife Habitat Relationships Program, being developed in the Alaska Region, is a system that organizes biological data, from various ecosystems, in a conceptual framework that assists resoure managers in predicting consequences and developing alternatives in land alteration schemes.

Standard - (1) A statement which establishes a rule or basis of comparison in measuring or judging the quality, content, context, value, etc., of something, (2) timber land use classificaiton prior to NFMA (1976) for commercial forest land most suited to timber harvest.

Streamside Strips - A strip of timber or other vegetation left along a stream to protect the fish habitat.

Subclimax Forest - A plant community representing a successional stage prior to climax.

Subclimax Ecosystem - A system formed by the interaction of a group of organisms with their environment. At subclimax the ecosystem is still evolving and has not reached a final stage of stability.

Suitability - The appropriateness of applying certain resource management practices to a particular unit of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

TMIS - Timber Management Information System designed to store and retrieve timber related information.

Technologically Marginal - Commercial forest land that requires more sophisticated logging systems than are available.

Temperature Sensitive Streams - Those streams flowing out of lakes or muskegs, or for some other reason susceptible to warming beyond an acceptable level determined by the interdisciplinary process.

Thousand-foot Board Measure (MBM) - A method of timber measurement in which the unit is equivalent to 1,000 square feet of lumber one inch thick. It can be abbreviated as Mbd. ft., Mbm, or MBF.

Threatened Species - Any species of animal or plant which is likely to become an endangered species within the foreseeable future throughout all or a portion of its range.

Transportation Corridor - A delineated geographic area through which roads, water, and air routes pass.

Transportation Mode - This term is used to designate forms of transportation, such as autos, boats, and airplanes.

Unauthorized Occupancy - Is the occupancy of National Forest lands without authorization for purposes for which Federal law or regulation require a permit.

Uses requiring permits include: use for commercial purposes, use by individuals resulting in exclusive occupancy, use requiring construction or maintenance of roads, trails, or any structure or improvement.

Permits are not required for noncommerical, temporary occupancy by individuals for purposes such as hiking, boating, fishing, hunting, camping, (except in some campgrounds), or similar uses.

Unregulated - Areas that are not organized for timber production, and are potentially allocations to numerous other management activities.

V-notch Drainage - A V-shaped stream channel generally on steep-mountainous landscapes. V-notch drainages may be shallow to many feet deep and may be eroded into rock, till, or other types of substrate.

Viable Population - A wildlife or fish population of sufficient size, demography and dispersion to maintain its existence over time in spite of normal fluctuations in population levels.

Visual Quality Objectives (VQO's) - Measurable standards reflecting five different degrees of landscape alteration based upon a landscape's diversity of natural features and the public's concern for scenic quality. The five objectives are (1) Preservation (2) Retention (3) Partial Rentention (4) Modification (5) Maximum Modification. "Inventory" VQO's have not yet undergone trade-off analysis relative to other resources. "Adopted" VQO's reflect anaylsis involving other resources and become management direction in a selected and approved land mangement alternative.

(1) Preservation - Allows only ecological changes. Management activities, except for very low visual impact recreation facilities, are prohibited. This objective applies to specially classified areas including wilderness.

(2) Retention - Provides for management activities which are not visually evident. Management activities are permitted but the results of those activities on the natural landscape must not be evident to the average viewer.

(3) Partial Retention - Management activites may be evident to the viewer, but must remain visually subordinate to the surrounding landscapes.

(4) Modification - Management activities may visually dominate the original surrounding landscape but must borrow from naturally established form, line, color, and texture.

(5) Maximum Modification - Land management activities can dominate the natural landscape to a greater extent than in the modification objective except as viewed from background when visual characteristics must be those of natural occurrences within the surrounding area.

Volume Class - Average stand volume usually given as net board feet per acre, Scribner Rule, on the Tongass and Chugach National Forests.

Wetlands - Those areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Wildlife Corridor - A natural route offering relative ease of travel for terrestrial animals as dictated by land forms, water, and/or vegetation and often descending a ridge or paralleling a river.

Windthrow - Areas of trees uprooted by the wind.

APPENDIX B

RESEARCH NATURAL AREAS/ECOLOGICAL RESERVES

Planning direction provides that a system of Research Natural Areas/Ecological Reserves be established based upon the need to protect and preserve for study unique ecological and geological type sites representative of natural diversity of Alaska's National Forests. Establishment of these sites having special scientific interest is part of the cooperative effort of several resource management agencies in Alaska to establish both undisturbed study sites (Researh Natural Areas) as well as sites reserved for use in studies that may modify the environment. While sites of both types are included in Ecological Reserves, Research Natural Areas are of primary concern in Forest Planning. Research Natural Areas will therefore be established based upon discrete plant communities and unique geological features.

At the present time there are 22 Research Natural Areas/Ecological Reserves which have been established in Alaska. Eight of these are located on the Tongass National Forest. (See Table 1.)

Plant Communities

Plant communities are natural landscape components and represent discrete assemblages of plants that occur only where the environmental requirements of all the member species are met. Plant community classification work in Alaska has been limited, with the principal accomplishment being development of a hierarchal system by Viereck and Dyrness. This system was published in 1980 as Forest Service Technical Report PNW-106.

There are 5 levels in the Viereck and Dyrness system. For Southeast Alaska there is sufficient information to define type needs at the lowest level - Level V - in the system. For Southcentral Alaska there are practically no field based studies in the literature, so based on the known ranges of plant species community selection parameters will be identified under Level IV communities. Additional needs will be defined on the basis of the distributions and habitat preferences of selected shrub species in both Southeast and Southcentral.

Geological Features

Alaska is one of the most geologically diverse areas for its size in the world. Nearly every kind of bedrock and many landform types are found. It has major tectonic activity, a dynamic shoreline, and range areas covered with glacial ice.

Implementation Plan

Future Research Natural Areas will be selected through the use of the following steps in the Forest Planning process:

Step 1.
Compare features on existing Research Natural Areas (See Table #1) with the type needs lists to determine needs which are already fulfilled. In some cases this will require better information on the natural features of the existing Research Natural Areas than is currently available. Anticipated preparation of a guidebook documentation of the existing Research natural Areas and other Ecological Reserves in Alaska will assist in this; coordination and cooperation with designated Research representatives is required.

Step 2.
Identify piroties among the remaining unmet type needs. Several criteria can be used to establish these priorities. If the potentialimpact of management on a particular type need feature is of concern, then a high priority could be established for the feature. It should be remembered that the goal is to adequately represent the feature in order to be able to conduct research and educational activities, not to preserve large amounts of land. Other criteria for setting priorities would include scientific interest, need for baseline information, and opportunity for efficiencies in travel and logistics in field work at a site.

Step 3.
Combine remaining unmet type needs into estimated area needs. Each type need will not require a separate Research Natural Area. Well chosen candidate Research Natural Areas will contain several type needs. Maximizing the number of natural features within a given area adds interest because diversity is itself a condition of scientific interest.

Step 4.
Initiate the search for these area needs on the National Forest Monuments. The National Forest Monuments were established partly for scientific and educational purposes. When appropriate, Research Natural Areas should be sited on these Monuments since the Monument represent the most compatible land use allocation within Alaska National Forests for this purpose. Research Natural Areas proposed for the Monuments will be carefully selected in accordance with planned type needs and research needs in consonance with the Monuments' scientific purposes.

Step 5.
If the feature or area need is unavailable in a Monument, then enlarge the search to wilderness areas, wilderness study areas, or other withdrawn lands. If a Research Natural Area is to be established in any of these designated or withdrawn areas then it should be reasonably accessible, generally meaning no more than a two hour hike from the nearest permitted point of vehicle (boat or aircraft, in particular) access.

Step 6.
If the feature or area need can't be met in a Monument, wilderness, wilderness study area, or other withdrawn area, then broaden the search to National Forest land use designations that involve no programmed resource management. (LUD II or equivalent).

Step 7.
If the type need remains a priority and can not be met in any of the preceding land use designations, then broaden the search to National Forest Areas of programmed resource management (LUD III's and IV's in TLMP). Attempt to accomodate the need to the greatest extent possible in portions of the management unit that are unavailable for resource development and extraction because of multiple use and environmental quality constraints.

Step 8.
After selection of candidate areas, National Forest and Research personnel will proceed with establishment review procedures leading to establishment of Research Natural Area as part of the forest planning process.

Table 1

FORMALLY ESTABLISHED UNITS OF THE ALASKA ECOLOGICAL RESERVES SYSTEM

1.	Agattu Island Research Natural Area	USFWS	Aleutian Islands
2.	Andrew Simon Research Natural Area	USFWS	Kenai Moose Range
3.	Bedlam Lake Research Natural Area	USFWS	Kenai Moose Range
4.	Bottinentnin Research Natural Area	USFWS	Kenai Moose Range
5.	Buldir Island Research Area	USFWS	Aleutian Islands
6.	Cape Fanshaw Research Natural Area	USFS	central Tongass N.F.
7.	Dog Island Research Natural Area	USFS	southern Tongass N.F.
8.	Firth River-Mancha Creek Research Natural Area	USFS	Arctic Wildlife Range
9.	Halibut Cove Research Natural Area	BLM	south of Seward
10.	Limestone Inlet Research Natural Area	USFS	northern Tongass N.F.
11.	Mount Glotoff Research Natural Area	USFWS	Kodiak Island
12.	Nikolai Bay Research Natural Area	USFWS	Kenai Moose Range
13.	Old Tom Creek Research Natural Area	USFS	southern Tongass N.F.
14.	Pack Creek Research Natural Area	USFS	Admiralty Island
15.	Red River Research Natural Area	USFS	Misty Fiords--southeast of Ketchikan
16.	Shublik Research Natural Area	USFWS	Arctic Wildlife Range
17.	Skilak Lake Research Natural Area	USFWS	Kenai Moose Range
18.	Bonanza Creek Experimental Forest	DNR-USFS	west of Fairbanks
19.	Caribou-Poker Creeks Research Watershed	DNR-BLM	east of Fairbanks
20.	Maybeso Experimental Forest	USFS	southern Tongass N.F.
21.	Young Bay Experimental Forest	USFS	Admiralty Island
22.	Washington Creek Fire Ecology Research Area	BLM	north of Fairbanks

PLANT COMMUNITY TYPE NEEDS - SOUTHEAST

A. FOREST

Closed Conifer Forest

Sitka Spruce	1.	Pisi/Opho-Rusp/Coca
Sitka spruce-western hemlock	2.	Pisi-Tshe/Lyam/Sphg
	3.	Pisi-Tshe/Vaov-Vaal-Mefe
	4.	Pisi-Tshe/Moun-Titr/Mnim
Westerm hemlock-Sitka spruce (western redcedar)	5.	Tshe-Pisi-(Thpl)/Lyam/Sphg
	6.	Tshe-Pisi-(Thlp)/Lyam/Sphg
Western hemlock-western redcedar	7.	Tshe-Thlp/Vaov-Lyam
Mountain hemlock	8.	Tsme/Vaov-Clpy
Western hemlock-mountain hemlock	9.	Tshe-Tsme/Vaov-Vaal/Rupe/Rhlo
Silver fir	10.	Abam-Tshe
Subalpine fir	11.	Abla-Tsme

Open Conifer Forest

Shore pine-western hemlock-sq(western redcedar-Alaska yellow-cedar)	12.	Pico-Tshe-(Thlp-Chno)/Vaov-Vaal-Legr/Sp
Sitka spruce	13.	Pisi/Alsi/Caca
	14.	Pisi/Alte
Mountain hemlock	15.	Tsme/Casp-Vaov-Facr

Conifer Woodland

Shore pine-(alaska yellow-cedar)	16.	Pico-(Chno)/Emni-Legr/Capl/Spfu
	17.	Pico-(Chno)/Vaul/Trce/Spco-Spte
	18.	Pico-(Chno)/Cali-Eran/Spli-Sppa
	19.	Pico-(Chno)/Dran-Rhal/Spli-Spte
	20.	Pico/Kapo/Eran-Capl-Tooc-Facr/Spli-Spco
	21.	Pico/Cali-Caph-Ruar-Pldi/Sppa-Spre

Closed Deciduous Forest

Red alder	22.	Alru

Black cottonwood	23. Poti
Aspen	24. Potr/Vied/Libo 25. Potr/Salx/Aruv
	Open Deciduous Forest
Aspen	26. Potr/Aruv
B.	TUNDRA
Crowberry	27. Emni-Cast-Phal-Vacc
	28. Emni-Capl-Cama/Clad
Ericaceous shrubs	29. Phal-Vacc-Cast-Emni 30. Phal-Cast 31. Phal-Cass-Vacc 32. Came-Cast-Emni 33. Phal-Came
Snowbed communities	34. Lupe-Phal-Cass
C.	SHRUBLAND
Alder	35. Alsi/Rusp 36. Alte/Caca
D.	HERBACEOUS
	Bluejoint-herb
Bluejoint-mixed herbs	37. Caca-Epan-Geer 38. Caca-Epan-Hela-Ange 39. Caca-Debe-Hela-Anlu
	Herbs
Mixed Herbs	40. Poeg-Feru
Fireweed	41. Epan
Cow parsnip	42. Hela-Vevi-Setr 43. Hela-Atfi-Anlu/Clsi/Caum-Cotr
Ferns	44. Atfi-Cyfr-Botr-Gydr

Elymus

Coastal elymus	45. Elar
Coastal elymus-herb	46. Elar-Hope-Mema
	47. Elar-Seps-Lama
	48. Elar-Lama-Poem
	49. Elar-Lisc-Anna
	50. Elar-Hela-Clsi
Dume elymus	51. Elar-Feru
	52. Elar-Lama-Scps-Anlu
	53. Elar-Pobo-Seps

Mesic midgrass

Hair-grass	54. Debe

Wet sedge-grass (freshwater)

Sedge marsh	55. Caly
	56. Scva
	57. Cama

Saline sedge-grass (tidal marsh)

Halophytic grass	58. Punu
	59. Pugr
Halophytic sedge	60. Caly
	61. Elpa
Halophytic herbs	62. Juar

E. AQUATIC VEGETATION

Ponds and Lakes

Emergent vegetation	63. Hivu

Streams

Emergent Vegetation	64. Popa-Metr-Ctpa

PLANT COMMUNITY TYPE NEEDS - SOUTHCENTRAL

A. FOREST

Closed Coniferous Forest

Sitka spruce	Alluvial flood plains and outer coastal fringe
Sitka spruce - western hemlock	Skunk cabbage, blueberry, and foam flower types
Western hemlock - sitka spruce	Blueberry and skunk cabbage types
Western hemlock - mountain hemlock	Low elevation type
Black spruce	Feathermoss and wild rose types
Black spruce - White spruce	Feathermoss type
White spruce	Viburnum, twinflower, and feathermoss types
White spruce-Sitka spruce hybrid	Kenai Peninsula area

Open Conifer Forest

Sitka spruce - alder	Alluvial, moraine, and outwash sites
Mountain hemlock	High elevation type
White spruce	Birch shrub types
Black spruce	Cold, poorly drained sites

Closed Deciduous Forest

Black cottonwood	Floodplain sites with rich soils
Balsam poplar	Floodplain sites with rich, relatively warm soils
Paper birch	Alder types especially
Aspen	Viburnum and bearberry types especially

Closed Mixed Forest

Popular - spruce	Flood plain horsetail type

Open Mixed Forest

Spruce - birch	Moss, alder, and lichen types

B.	TUNDRA
	Mesic sedge - grass
Mesic sedge - herb meadow	Carex-geranium-lupine type
	Alpine Herbaceous Tundra
Alpine herbs	Luetkea and fauria types
	Birch and Ericaceous Shrubs
Crowberry	Cassiope, Vaccinium, and Carex types
Ericaceous shrubs	Mountain heather types especially
	Open Mat and Cushion
Snowbed	Luetkea type especially
Open lichen	Harsh, windblown, rocky sites
C.	SHRUBLAND
	Closed Tall Shrub
Willow	Feltleaf willow types especially
Alder	Sitka alder types especially
	Open Low Shrub
Mixed shrub - sphagnum	Sweetgale type
D.	HERBACEOUS
	Bluejoint
Bluejoint meadow	Pure and red fescue types
	Bluejoint - Herb
Bluejoint - fireweed	Naturally disturbed areas
Bluejoint - mixed herbs	Geranium and other types
	Bluejoint - Shrub

Bluejoint - alder	May be a variant of type in Southwest Alaska
	Herbs
Fireweed	Naturally disturbed areas
	Elymus
Coastal elymus	Pure type
Coastal elymus - herb	Senecio and Lathyrus types especially
	Mesic Midgrass
Midgrass - herb	Tall and red fescue types especially
	Wet Sedge - Grass (fresh water)
Sedge marsh	Verification of type occurrences needed
	Saline Sedge - Grass (tidal marsh)
Halophytic grass	Puccinellia types
Halophytic sedge	Sheltered coastal sites
Halophytic Herbs	Seaward of *Elymus arenarious* strip

E. AQUATIC VEGETATION

Ponds and Lakes

Floating and submerged	Ranunculus, Potamogeton, and Nuphar types especially
Emergent	Hippuris and Cicuta types especially

Streams

Floating and submerged	Verification of type occurrences needed
Emergent	Potentilla type especially

II. SHRUB SPECIES TYPE NEEDS--SOUTHEAST

		Selection Rationale			
	Shrubs	Open Habitats	Restricted to Southern Southeast	Restricted to Haines Area	Indicator Species
1.	Myrica gale (Sweet Gale)	X			
2.	Sorbus scopulina (Greene Mountain-ash)	X			
3.	Physocarpus capitatus (Pacific Ninebark)	X	X		
4.	Crategus douglasii (Black Hawthorn)	X	X		
5.	Spirea douglasii (Douglas Spirea)	X	X		
6.	Gaultheria shallon (Salal)		X		X
7.	Lonicera involucrata (Bearberry Honeysuckle)		X	X	
8.	Amelanchier florida (Pacific Serviceberry)		X	X	
9.	Alnus tenuifolia (Thinleaf Alder)			X	
10.	Ribes hudsonianum (Northern Black Currant)			X	
11.	Shepherdia canadensis (Buffaloberry)			X	
12.	Arctostaphylos uva-ursi (Bearberry)			X	X
13.	Symphoricarpos albus (Snowberry)			X	X
14.	Acer glabrum var. douglasii (Douglas Maple)				X
15.	Ribes bracteosum (Stink Currant)				X
16.	Ribes lacustre (Swamp Gooseberry)				X
17.	Malus diversifolia (Oregon Crab Apple)				X
18.	Rhododendron camtschaticum (Kamchatka Rhododendron)				X

II. SHRUB SPECIES TYPE NEEDS--SOUTHCENTRAL

Shrubs	Selection Rationale: Local on Rocky or Sandy Habitats	Local on Coastal Habitats	Local Species on Kenai Peninsula	Local Species on Prince William Sound
1. *Juniperus communis* (Common Juniper)	X			
2. *Juniperus horizontalis* (Creeping Juniper)	X			
3. *Salix hookeriana* (Hooker Willow)		X		
4. *Malus diversifolia* (Oregon Crab Apple)		X		
5. *Betula papyrifera* var. *kenaica* (Kenai Birch)		X		
6. *Amelanchier florida* (Pacific Serviceberry)			X	
7. *Rubus leucodermis* (Western Black Raspberry)			X	
8. *Crateaegus douglasii* (Black Hawthorn)				X
9. *Cladothamnus pyrolaeflorus* (Copperbush)			X	

Hot Springs-Geothermal Features (2) Two kinds of hot springs should be represented. Both should contain at least some water that issues at a temperature will above 60° C, so that thermophyllic bacteria are supported. Blue gree algal mats should be represented in pools or stream segments in the 35 to 60° C temperature range. One hot spring system should be in the northern portion of Southeast and one in the south. If possible, one hot spring system should be high in sulfur (over 200 ppm sulfate) ad the other relatively low (less than 100 ppm). Both sites should have several pools or springs. A pool or spring at least one site should issue under pressure.

Recent Lava Flow A typical alkali-olivine basalt flow active in historic times (unaltered icy glaciation) is needed. Both ropy and smooth pahoehoe lava and blocky ah ah lava should be represented. If possible a vent area with cinders should be included in order to illustrate plant succession (especially trees) on finder textured material. Charred tree remains and lichen fields should be represented also.

Quaternary Volcanic Vent A Quaternary volcanic vent modified by glacial scour and deposition should be represented. It should be quiescent and covered with vegetation. It should illustrate physiographic maturation processes including, if possible, differential erosion rates.

Lakes The following lake types, identified by their primary geologic factor of origin, are needed.

A. Volcanic A lake formed by the damming effect of flowing lava. A wetland complex of submerged and emergent aquatic vegetation should be present to illustrate sedimentation and infilling at the stream inlet.

B. Ice Block Kettle Hole A lake(s) formed by the melting of an ice block in glacial outwash terrain. Both steep and shallow shorelines should be present. The aquatic ecosystem should be oligotrophic or mesotrophic.

C. Slump Pond A pond or small lake formed in the headward basin of a rotational block failure on a slope.

D. "hanging" Cirque A lake formed by glacial scouring of bedrock in a "hanging" glacial valley. The lake should be near contemporary treeline in order to be neither essentially sterile nor greatly modified by vegetation and high rates of weathering.

E. Tectonic-Morainal Fiord A lake at the head of a tectonically controlled and glacially scoured fiord with a terminal moraine serving as a dam. There should be little difference (no more than 100m) in elevation between sea level and the lake surface level.

F. Valley Morainal A lake in a valley with a well developed branching drainage network dammed by a glacial moraine. The lake should be at low to moderate elevations and support at least moderately productive aquatic ecosystems.

Solution Pits Pits formed by the acid groundwater dissolution of limestone or marble bedrock. If possible, a large emerging cold spring system or an underground segment of a river or stream should be included.

Active Dune System An active coastal dune system with open unvegetated sand, deflation plain, sandspit, baymouth bar, and if possible, dark sands. Some areas of vegetation-stabilized sand as well as an actively wind eroding margin should be present.

Restricted Circulation Bay A bay with a tightly constricted opening to a strait or channel of the inner marine waters of the Alexander Archipelago. The system should illustrate increased tidal amplitudes caused by the restricted flow at the bay mouth.

Reversing Salt Chuck (Marine Falls) A salt chuck or tidally driven waterfall. It should have, at least occasionally, cascading water on both flood and ebb tides.

Coastal Staircase Benches A well defined series of terraces and small cliffs formed by stillstands at different relative sea levels. A long unbroken sequence or one establishing a local chronology should be represented.

Open Wave Beaten Coast A rocky outer open Pacific coastline. The shoreline should have, if possible, a variety of landforms including cliffs, headlands, offshore rocks, and gradually sloping terrace that has undergone marine transgression.

Isostatic Rebound A shoreline undergoing rapid uplift from the release of the weight of glacial ice. Evidence of this movement in the form of altered stream and shoreline morphology should be present. An area on the north mainland not directly associated with the rapidly fluctuating Glacier Bay system is needed.

Small Glacial System A small glacier on the north mainland. The glacier should be as self contained as possible; it should be at moderate elevations and not have an extensive higher elevation gathering area.

Nunataks Ice-free land surface within a glacier covered landscape. The nunataks of the Juneau ice field should be represented. The nunataks should have some vegetative cover; if possible these plants should indicate something about the migration of organisms during and since the Pleistocene.

Alpine Solifluction Lobe Undetectably slow flow of water-saturated regolith downslope over frozen ground. If possible, vegetation indicators should be present.

High Elevation Periglacial Phenomena Frost wedging of rock, frost heaving, ide-free permafrost if it occurs. The area should be an expanse of high elevation land as large as possible.

Snow Avalanche Chute A steep track that regularly experiences snow avalanches. Vegetation indicators should be present. Both high elevation and low elevation examples are needed.

Rotational Block Failure A downward slipping coherent body of soil, rock, and/or regolith that moves along a curved surface of rupture. A slump basin and pond should be presnt.

Mass Wasing-Soil Creep An area of undetectably slow downslope movement of soil and regolith. A low elevation example (in contrast to the alpine solifluction feature) is needed which supports tilted trees and other indicators.

Active Fault Scarp A slippage plane undergoing rapid tectonic displacement. Altered streamcourses and other indicators should be present.

Waterfalls-Plunge Pool System A waterfall and a plunge pool system for a major stream or small river. If possible "potholes" ground into bedrock at the base should be present; the falls should serve as a migratory barrier to anadromous fish.

III-B SECONDARY ELEMENT NEEDS - GEOLOGIC BEDROCK TYPES - SOUTHEAST

Sedimentary Rocks

Limestone (with and without chert inclusions)

Sandstone (quartz, arkosic, and graywacke)

Shale-Mudstone

Conglomerate

Dolomite

Evaporites (rock gypsum or others)

Chert (inclusions in Limestone)

Coal (especially lignite)

Igneous Rocks

(fine grained equivalent)	(coarse grained equivalent)
Basalt	Gabbro
Rhyolite	Granite
Andesite	Diorite
Phonolite	Nepheline Syenite

Methamorphic Rocks

(faintly foliated	derived from)	(well foliated	derived from)
Hornfels	any fine-grained rock	Chlorite schist	Andesite or Basalt
Marble	Limestone or Dolomite	Amphibole schist	Basalt or Gabbro
Amphibolite	Basalt or Gabbro	Gneiss	Granite, Rhyolite, or Diorite
Tactite	Limestone or Dolomite (with epidote if possible.)		

III-A GEOLOGIC-LANDFORM TYPE NEEDS - SOUTHCENTRAL

Tidewater Glacier Terminus-Catastrophic Retreat A tidewater glacier withdrawing from its terminal moraine and with the potential to undergo catastrophic retreat from iceberg calving. The glacier should be in northern Prince William Sound. The current terminus should be the focus of interest now as the process of retreat or restablization takes place. If the retreat does take place then this former terminus will be of particular value for monitoring succession and landscape development; other features of interest in the retreating ice mass or its margin can be identified later.

Tidewater Glacier Terminus-Stable A steeply sloping tidewater glacier emptying into deep water with little outwash sediment accumulation. Any location around Prince William Sound would be suitable.

Piedmont Glacier Terminus and Proglacial Lake A lowland glacier spreading out to occupy coastal terrace topography with a meltwater lake along a portion of the ice margin. Convoluted folds in the ice made visible by entrained debris should be present or an ice cored moraine with vegetation present on the surface.

Terminus of Thickening Valley Glacier A simple valley glacier system increasing in thickness, in the Kenai Peninsula area. If possible, meltwater from the glacier, especially the flow at the base, should be discharged in a single stream outlet in order to allow easy monitoring in mass balance studies. The glacier should be relatively safe to work on and near, and should have the potential for easily servicing a long term high altitude climatic montioring station(s).

Advancing Tidewater Glacier Terminus A tidewater glacier that is pusing a cushion of morainal debris (subaquaeous) in front of it, allwing ice advance. The system should e poised for signficant, steady long-term advance. The terminus is again the focus of interest, although features along the valley or fiord margins should be included also.

Small Glacial System on Northeast ("rain shadow") Slope of the Eastern Chugach Mountains A complete small glacier system with limited gathering area and low elevation terminus on the relatively dry northeastern slope of the Chugach Mountains. The Cordova Peak - Meteorite Mountain block of the Chugach Mountains is the most suitable location.

Braided Glacial Outwas River Floodplain A braided river course actively aggrading from outwash debris being carried by glacial meltwater. The river floodplain segment should be relatively short, feeding into either a stabilized river systemor the ocean or Prince William Sound.

Glacial Valley Sideslope Scree Fan A lowland, well-vegetated accumulation of sorted frost churned debris (coarsest material at the base) deposited along the margin of a U-shaped glacial valley.

Frost Churned Highlands An area undergoing active frost wedging and sorting of stony material and debris at moderate elevations on the Kenai Peninsula. A relatively broad and level expanse of upland should be included with material being funnelled into a sideslope scree channel.

Sideslope Glacial Outwash Alluvial Fan Fan-shaped alluvial deposit along the lower sideslope of a glacial valley. The fan should be at the outlet of a side drainage at the break in stream gradient. Some sorted material should be present, with the coarser material higher up and the finer textured material transported to the lower portion of the fan.

Breakwater Sandbars Offshore shifting sandbars in the Bering River - Copper River delta region.

Small Islands and Rocks in Prince William Sound Small islands and rocky islets illustrating coastal erosion-deposition activity on at least two contrasting bedrock types or geologic substrates.

Outer Gulf Coastline Wave beaten coast with rocky beach segment along the outer Gulf of Alask coast at the Prince William Sound approaches.

Coastal Tectonic Uplift An area where sub or intertidal sediment was uplifted several meters in the 1964 earthquake. The area should be above high tide and undergoing plant colonization and geomorphic change.

Lakes The following lake types are needed.

A. Shoreline of Major Valley Morainal Lake The shoreline of a major low-elevation valley morainal lake with a well vegetated shoreline (primarily forest).

B. Alpine A small glacially scoured lake basin above tree line.

IV. PROVISIONAL ANIMAL SPECIES OCCURRENCE NEEDS - SOUTHEAST

A. BIRDS

Bald Eagle *Haliaeetus leucocephalus*	Representative shoreline segment with active nests
Peregrine Falcon, Peale's *Falco periegrinus pealei*	Nesting and resting cliff

B. MAMMALS

Bushy-tailed Woodrat *Neotoma cinera*	Foraging and den habitat near talus
Prince of Wales Otter *Lutra mira*	Den on a tidewater bank under on old-growth tree
Northern Sea Lion *Eumetopias jubata*	Hauling out grounds and birth site, rocky beach above tide

C. Fish

White Sturgeon *Acipenser transmontanus*	Spawing stream
Northern Pike *Esox lucius*	Disjunct occurence in freshwater lake

D. REPTILES

Common Gartersnake *Thamnophis sirtailis*	Typical habitat - rocks or logs near marsh, ponds, or grass

V PROVISIONAL ANIMAL SPECIES OCCURRENCE NEEDS - SOUTHCENTRAL

A. BIRDS

Trumpeter Swan *Olor buddinator*	Pond and lake breeding habitat
Dusky Canada Goose *Branta canadensis occidentalis*	Nesting and breeding habitat
Bald Eagle *Haliaeetus leucocephalus*	Typical segment of shoreline habitat with nest trees
Perigrine Falcon, Peale's *Falco peregrinus pealei*	Nesting and resting cliff

B. MAMMALS

Northern Sea Lion *Eumetopias jubata*	Hauling out grounds and birth site, rocky beach above tide

C. FISH

White Sturgeon *Acipenser transmontanus*	Spawning stream

APPENDIX C

Summary of Legal Authority

The establishment and management of National Forests are based on legislation passed by Congress. More that 140 Federal laws define various Forest Service authorities. They include the following major laws:

THE CREATIVE ACT OF 1891 authorized the President to establish forest reserves from the public domain. President Harrison set aside 13 million acres under this Act, but there was no provision for administration. THE ORGANIC ADMINISTRATION ACT OF 1897 provided for protection, management and use of forest reserves from the Department of Interior to the Department of Agriculture. An Act of March 4, 1907, renamed the forest reserves National Forests.

THE ANTIQUITIES ACT OF 1906 provided for the protection of historic or prehistoric remains, or any object of antiquity, on Federal lands; established criminal sanctions for unauthorized destruction or appropriation of antiquities; and authorized scientific investigation of antiquities on Federal lands, subject to permit and regulations.

THE WEEKS LAW OF MARCH 1, 1911 authorized the purchase of lands for timber production and regulation of the flow of navigable streams. Most of the National Forests in the South and East were established under the Weeks Law. This Act also provided for a program of Federal-State cooperation in fire protection.

THE HISTORIC SITES ACT OF 1935 authorized the establishment of national historic sites and otherwise authorized the preservation of properties of national historic or archeological significance, authorized the designation of National Historic Landmarks; established criminal sanctions for violation of regulations pursuant to the Act; authorized interagency, intergovernmental, and interdisciplinary efforts for the preservation of cultural resources; and other provisions.

THE MULTIPLE USE-SUSTAINED YIELD ACT OF 1960 confirmed long-standing Forest Service policy to administer the National Forests for outdoor recreation, range, timber, watershed, wildlife and fish purposes. It stressed that consideration be given to relative values of resources in particular areas.

THE WILDERNESS ACT OF SEPTEMBER 3, 1964 as amended January 3, 1975 declared the policy of Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness.

THE LAND AND WATER CONSERVATION FUND ACT OF SEPTEMBER 3, 1964 was enacted to preserve, develop and assure accessibility to the quality and quantity of outdoor recreation resources that may be available, and are necessary and desirable for individual active participation to strenghten the health and vitality of the citizens of the United States.

THE HISTORIC PRESERVATION ACT OF 1966 created the National Register of Historic Places, authorized funds for the acquisition and preservation of cultural resources, and established the Advisory Council on Historic Preservation.

THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 declared a National policy to encourage productive and enjoyable harmony between man and his environment. It provided a continuing policy for the Federal Government to cooperate with State and local governments and other concerned public agencies to promote the general welfare and to achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities. This Act mandated the use of a systematic and interdisciplinary approach to planning and making decisions.

THE ENDANGERED SPECIES ACT OF DECEMBER 28, 1973 provided a means to conserve ecosystems upon which endangered wildlife and plant species depend and to provide a program for the conservation of endangered and threatened species. The purpose of existing treaties and conventions was also emphasized by the Act.

THE FOREST AND RANGELAND RENEWABLE RESOURCES PLANNING ACT OF 1974 provided an orderly framework for assessing the supply of, and demand for, the Nation's forest and related resources. It also provided for the development of long-range plans to assure that the American people enjoy adequate supplies of water, recreation, forage, timber and wildlife from the National Forest System and private forest lands in the decades ahead.

THE SIKES ACT OF OCTOBER 18, 1974 provided for conservation and rehabilitation of wildlife on certain public lands including the National Forests. The Act provided for the cooperative development, with the States, of comprehensive plans for conservation and rehabilitation of wildlife, fish and game.

THE NATIONAL FOREST MANAGEMENT ACT OF 1976 amended both the Organic Act of 1897, and major sections of the Forest and Rangeland Renewable Resources Planning Act of 1974. Among other things, the provisions of the Act clarified how certain forestry practices will be carried out and strengthened the definition of planning procedure.

THE FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 called for a periodic and systematic inventory of public lands and their resources for present and future use through land management planning, with coordination among Federal and State agencies. This Act provided for preservation and protection of certain public lands in their natural condition, for food and habitat for fish, wildlife and domestic animals, and for outdoor recreation, human occupancy and use. The law also dealt with acquisition, administration and disposition of public lands.

THE COOPERATIVE FORESTRY ASSISTANCE ACT OF 1978 directed the Secretary of Agriculture to work through and in cooperation with State Foresters in conducting Federal forestry programs on non-Federal lands. These programs provide for advancement of forest resource management, encouragement of wood fiber production, prevention and control of insects and diseases, prevention and control of rural fires, efficiency of wood utilization, improvement and maintenance of wildlife and fish habitat and urban forestry programs.

THE ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT OF 1980 generally known as the ALASKA LANDS ACT, established a number of conservation units in Alaska for the purpose of preserving them for the benefit, use, education and inspiration of present and future generations of the Nation. It recognized the role these units will play in the satisfaction of economic and social needs of the State of Alaska and its people.

EXECUTIVE ORDER 11593, PROTECTION AND ENHANCEMENT OF THE CULTURAL ENVIRONMENT, MAY 13, 1971 stated that the Federal Government shall provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation; directed Federal agencies to insure the preservation of cultural resources in Federal ownership and instituted procedures to insure that Federal plans and programs contribute to the preservation and enhancement of nonfederally-owned sites, structures, and objects of historic, architectural, or archeological significance; ordered Federal agencies to locate, inventory, and nominate to the National Register of Historic Places all properties under their control or jurisdiction that met the criteria for nomination; directed them to exercise caution during the interim period to insure that cultural resources under their control were not inadvertently damaged, destroyed, or transferred before the completion of inventories and evaluation of properties worthy of nomination to the National Register, and ordered the Secretary of the Interior to undertake certain advisory responsibility in compliance with the order.

EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT, MAY 24, 1977 provided for floodplain management to reduce the risk of flood loss, to minimize the impacts of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS, MAY 24, 1977 provided for Federal agencies to take action to minimize the loss, destruction or degredation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Relevant State of Alaska Legislation:

THE STATE FOREST PRACTICES ACT OF 1978, known as Chapter 17. Forest Resources and Practices, to Laws of Alaska AS-41, Section 1, requires the State Forester to act for the Commissioner, Department of Natural Resources to: (a) use sound forest practices in the management of classified State Forest lands; (b) provide technical advice for the management of other State lands having renewable forest resources; (c) regulate operations on private lands; (d) provide public information and assistance regarding forest practices and timber management generally. To assist in development, implementation, and administration of the Regulations, the Governor has appointed a 14-member Board of Forestry. The Act applies to all forest land under State, municipal, or private ownership, and to forest land under Federal ownership to the extent permitted by Federal law.

APPENDIX D

The Alaska Lands Act and Forest Service Programs

National Forest lands and Forest Service programs in Alaska are affected in a variety of ways by the Alaska Lands Act (formally known as the Alaska National Interest Lands Conservation Act). The Act affects cooperative forestry efforts of the Forest Service's State and Private Forestry organization as well as activities of the Forest Service Forest and Range Experiment Station.

Implementation of the Act will be accomplished through the Forest planning process, which allows consideration of issues from a local perspective and maximizes opportunity for public participation in the decisionmaking process.

A summary of provisions in the Alaska Lands Act regarding lands and programs in Alaska administered by the Forest Service follows.

1. Additions and Land Adjustments to National Forest Areas

Alaska Region, National Forest System

	Tongass NF	Chugach NF
Acreage added by the Act	1,399,325 Acres	1,547,392 Acres
Total acreage after Act	16,954,713 Acres Gross*	5,940,040 Acres Gross*
Wilderness acreage created	5,361,899 Acres**	None created
Wilderness study acreage	None created	2,019,000 Acres
Wild and Scenic River Study	Situk River***	None created

* The gross total acreage includes 57,000 acres that were removed from the Tongass National Forest and 97,000 acres that were removed from the Chugach National Forest. Other adjustments will be made for additional transfers of National Forest land to Native corporations, the State, and the Fish and Wildlife Service.

** Final acreage may differ from these figures when official boundary maps are completed.

*** The Act provides for a study area extending out two miles from both banks of the river.

2. Tongass National Forest Timber Supply and Harvest

The Act directs the Forest Service to maintain a timber supply level of 4.5 billion board feet per decade on the Tongass National Forest [Sec. 705].

The Act requires periodic reports to Congress on: (1) status of timber harvest levels in the Tongass National Forest since enactment; (2) impact of Wilderness designation on timber, fishing, and tourism industries in Southeast Alaska; (3) measures instituted by the Forest Service to protect fish and wildlife; (4) status of the Small Business Set Aside Program on the Tongass National Forest; (5) supply and demand of timber; and, (6) opportunities to increase timber yields.

The studies required for these reports will be conducted in cooperation and consultation with the State, affected Native corporations, the Southeast Alaska timber industry, the Southeast Alaska Conservation Council, and the Alaska Land Use Council.

The Act authorizes establishment of a special loan program designed to help purchasers of National Forest wood products to acquire equipment and to develop new technology for using wood products. The program is designed to encourage utilization of marginal timber. A fund of five million dollars will be established for these loans [Sec. 705(b)(1)].

3. Cooperative Studies

The Act prescribes a number of cooperative studies and plans. In several of these, specific cooperators have been named, and include other Federal agencies, State agencies, communities, Native corporations and villages, private groups, and the Alaska Land Use Council.

Studies and Plans include:

a. Chugach Region Study

The Alaska Lands Act specifically directs that a Chugach Region Study be completed and submitted to the President by December 1981. The study will focus on land ownership and use patterns in the Chugach Region. The objectives are to identify lands that can be made available for conveyence to Chugach Natives, Inc., in keeping with the intent and purpose of the Alaska Native Claims Settlement Act, and to improve the boundaries of conservation units. The one-year study will involve affected communities and will provide for public hearings. Cooperators are the Secretaries of Agriculture and Interior, the Alaska Land Use Council, the Chugach Natives, Inc., and the State of Alaska.

b. Quartz Hill Molybdenum Mine Study

The Act requires: (1) completion of a document by the Forest Service in cooperation with the State of Alaska and the Departments of Interior and Commerce that analyzes mining concepts proposed by U.S. Borax; and, (2) development of a draft Environmental Impact Statement (EIS) on an access road for bulk sampling purposes, and the bulk sampling phase of the proposed development [Sec. 503].

c. Cooperative Fisheries Planning

The Act requires development of a cooperative planning process for enhancement of fisheries resources through fish hatchery and aquaculture facilities and activities on National Forest lands [Sec. 507(a)].

d. Stikine River Region Study

The Act directs that a study be conducted of the effect of the Act on the ability of the Government of Canada to obtain coastal access in the Stikine River Region of the Tongass National Forest [Sec. 1113].

e. Cooperative Information/Education Centers

The Act requires investigation and planning for development of a cooperative information/education center in Juneau, Ketchikan, or Sitka [Sec. 1305].

f. Fisheries and Mining

The Act requires that a cooperative study be conducted to determine if additional safeguards are required to protect fisheries resources from damage as a result of mining activities. Regulations may be promulgated as a result of this study [Sec. 505(a)].

4. The Alaska Lands Act and National Forest Planning

Many Alaska Lands Act issues will be resolved through the established Forest planning process. The Act itself resolved many questions, but it also created the need for new or revised management direction, and for some adjustments in land allocations and contractual arrangements. The Forest planning process, which provides ample opportunity for public involvement, will be used to accomplish these ends.

Examples of Alaska Lands Act issues to be resolved through the Forest planning process include:

Development of standards and guidelines for construction of permanent improvements for the enhancement of fisheries resources within designated wilderness [Sec. 1315(b)].

Development of policies, standards, and guidelines for use of Alaskan wilderness [Secs. 707, 1303(b), 1316].

Establishment of conservation of fish and wildlife and their habitats as the primary purpose for management of the Copper River Delta Region of the Chugach National Forest [Sec. 501(b)].

Wilderness study of certain areas of the Chugach National Forest left in a further planning category by the Nation-wide second Roadless Area Review and Evaluation (RARE II) [Secs. 704, 708(b)(2)].

Completion of a Wilderness study of the Nellie Juan-College Fiord area of the Chugach National Forest [Sec. 704].

Evaluation of the effects of current and planned management actions on subsistence uses [Secs. 810, 813].

Cooperative management with Kootznoowoo, Inc. of Mitchell, Kanalku, and Favorite bays and their immediate environs [Sec. 506(a)(3)(E)].

JAY S. HAMMOND, GOVERNOR

BOARD OF FISHERIES/BOARD OF GAME
DEPARTMENT OF FISH AND GAME

SUBPORT BUILDING
JUNEAU, ALASKA 99801

March 4, 1981

The Alaska Board of Fisheries and the Alaska Board of Game are responsible for regulating the harvest of Alaska's immense fisheries and wildlife resources. These regulations are implemented by the staff of the Alaska Department of Fish and Game.

At their December, 1980 joint meeting in Anchorage, the two Boards listened to four hours of presentations by the United States Forest Service and the Alaska Department of Fish and Game regarding a crucial Alaskan habitat issue: timber harvest in Southeast Alaska. Both presentations were followed by an extensive period of questions and answers regarding the impacts of clearcutting on fisheries and wildlife available for public harvest.

On behalf of the two Boards, I urge you to read the enclosed Resolution and give serious consideration to the issues it raises. If you have specific questions, I would be pleased to respond on behalf of the Boards. Dr. Ronald O. Skoog, Commissioner, will respond on behalf of the Department of Fish and Game.

DISTRIBUTION:

Governor Hammond
✓U.S. Forest Service-Regional and Washington, D.C.
Commissioner Skoog-ADF&G
Commissioner LeResche-DNR
USFWS Regional Director
Senator Ted Stevens
Senator Frank Murkowski
Representative Don Young
Secretary of Agriculture
All Alaska Legislators
Juneau Empire, Sitka Sentinel, Ketchikan News
All Southeast Alaska local Fish and Game Advisory Committees

Sincerely,

Greg Cook

Greg Cook
Executive Director
Boards of Fisheries and Game
(907) 465-4108

Enclosure: Joint Resolution #80-80-JB

BOARDS OF FISHERIES AND GAME
JOINT RESOLUTION #80-80-JB

CLEARCUT LOGGING IN SOUTHEAST ALASKA

WHEREAS, the Alaska Boards of Fisheries and Game are statutorily charged with the conservation and development of fish and game resources of the State and the Alaska Constitution mandates maintenance of fish and game populations on a sustained yield basis, and

WHEREAS, the U.S. Forest Service is committed to multiple use management through various federal acts and its own regulations, and

WHEREAS, the present forest management practice of clearcut logging throughout Southeast Alaska on a 90-125 year rotation is permanently converting diverse old growth stands with high fish and wildlife values to less diverse second growth stands of much less value to fish and wildlife, and

WHEREAS, past and projected timber harvest is concentrated in the higher volume stands of limited occurrence and current research has shown these stands to be highly important Sitka black-tailed deer winter habitat, and

WHEREAS, current scientific knowledge of other fish and wildlife species needs in relation to old growth forest is limited, yet indicates goats, marten, Vancouver Canada geese, bald eagles, salmonids and other species of fish and wildlife may be old growth dependent during some periods of the year, and

WHEREAS, the salmon commercial fisheries are one of the most valuable industries in Southeast Alaska and both subsistence and recreational use of fish and wildlife is highly important from both an economic and social standpoint, and

WHEREAS, the State Forest Practices Act, which regulates forest management activities on State and private lands, does not adequately address wildlife concerns,

Now therefore be it resolved by the Joint Boards of Fisheries and Game that:

1. The public be fully informed by the Department of Fish and Game and the U.S. Forest Service of the long term known and potential impacts of clearcut logging on fish and wildlife habitat and subsequent population levels.

2. The Tongass Land Management Plan be revised by the Forest Service to provide more protection for valuable fish and wildlife habitat and reflect recent research findings.

3. If information is not adequate to ensure the protection of fish and wildlife resources, then targeted timber outputs should be reduced by the Forest Service rather than risk permanent damage to these resources.

4. Research be expanded by both the Department of Fish and Game and the U. S. Forest Service to determine the effects of timber harvest on fish and wildife habitat requirements, and as new information becomes available, results be incorporated in the Forest Service planning process.

5. In all future timber harvests by the State and U. S. Forest Service, timber stands of more than 50,000 board feet per acre not be cut and other volume classes be cut only in proportion to their occurrence.

6. Multiple use management of all resources be maintained by the U. S. Forest Service on the remaining lands not withdrawn for wilderness management nor selected by Native Corporations.

7. Any assessment of resource values by the U. S. Forest Service include a full economic and social analysis of fish and wildlife resources and their human use.

8. Selective cutting with techiques such as balloon and helicopter logging be considered by the U. S. Forest Service as an alternative to clearcutting.

9. The State Forest Practices Act be amended to adequately address wildlife concerns.

10. Major islands or management units as proposed for the Forest Service Regional Plan, whichever are smaller, should be used by the U. S. Forest Service as the basis for individual forest management planning units.

Gordon Jensen
Chairman, Joint Boards of Fisheries & Game

Samuel J. Harbo, Jr.
Chairman, Board of Game

Nick Szabo
Chairman, Board of Fisheries

ADOPTED: Anchorage, Alaska
December 7, 1980

VOTE: Adopted, 14 to 0

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF FISH AND GAME
OFFICE OF THE COMMISSIONER

SUBPORT BUILDING
JUNEAU, ALASKA 99801

December 11, 1980

Mr. John A. Sandor
Regional Forester
U.S. Forest Service
Box 1628
Juneau, AK 99802

Dear John:

Enclosed for your information is a report prepared by our Game Division for the Board of Game on wildlife and forest practices in southeast Alaska.

Sincerely,

Ronald O. Skoog
Commissioner
(907) 465-4100

Enclosure

REPORT TO THE BOARD OF GAME

ON

WILDLIFE AND FOREST PRACTICES

IN SOUTHEAST ALASKA

November, 1980

INTRODUCTION

The present forest management practice of clearcut logging throughout southeast Alaska on a rotational basis of 90-125 years is permanently converting old-growth, uneven-aged forests with high wildlife values to second-growth, even-aged stands of much less value to wildlife. Many species are affected by this conversion of ecosystems, but more data are available for Sitka black-tailed deer than for other species. Recent research suggests that present plans for 90 to 125 year rotational clearcutting will significantly reduce carrying capacity for deer on both public and private lands (Wallmo and Schoen 1980). Other research reveals that old-growth forest is important for some phases of the activities of other wildlife species including bald eagles (Robards and Hodges 1976), mountain goats (Schoen 1979), moose (Doerr et al. 1980), elk (Taber and Raedike 1980), marten (Koehler et al. 1975), brown bears (Mace, in press), Canada geese (Lebeda 1980), and several other birds (Kessler 1979, Luman and Neitro 1980). The structure and physical diversity of old-growth forest is especially important for maintaining diversity of wildlife populations.

The Alaska Department of Fish and Game, through the Commissioner, is charged by State Statute [Sec. 16.05.020(2)] to "manage, protect, maintain, improve, and extend the fish, game, and aquatic plant resources of the State in the interest

of the economy and general well-being of the State." Present and proposed forest management practices for Federal, State, and private lands in southeast Alaska may be a major deterrent to the Department in meeting these responsibilities. This must be resolved before wildlife habitat in southeast Alaska is irreversibly altered.

The public has not been adequately informed about the non-renewable nature of old-growth forest habitat and the permanent consequences to wildlife of the current forest management policy of converting climax old growth to managed second growth in southeast Alaska. In all future land planning in southeast Alaska, the non-renewability of the old-growth, climax forest must be evaluated relative to the requirements of multiple use management and maintaining inherent diversity.

BACKGROUND

The Tongass National Forest (the largest in the United States) contains more than 15 million land acres. Approximately 9.5 million acres are forested and 5 million acres are classified by the U.S. Forest Service as commercial forest land. The State of Alaska and regional and village Native corporations are entitled to select lands from the Tongass Forest. To date, the State of Alaska has selected approximately 140,000 acres and anticipates selecting another 50,000 to 100,000 acres. Native corporations are now making selections and will eventually gain title to 550,000 to 600,000 acres. Some of the higher volume timber stands occur on these selected lands, and a major use of the lands by Native corporations will be for timber harvest estimated at 225 to 400 MMBF per year (FLPMA Withdrawal DEIS). So, although land ownership will change over time the issues and concerns addressed in this paper apply to

all forested lands in southeast Alaska.

Forest Characteristics

Approximately 92 percent of southeast Alaska commercial forest land is classified as "old-growth" forest where, by Forest Service definition, the majority of trees exceed 150 years of age. The term "old growth", however, means different things to different people. To some it means a virgin or climax forest and to others a silviculturally mature forest. Unfortunately, this lack of clear understanding of what constitutes old-growth forest has created confusion among both laymen and professionals.

For interpreting wildlife ecology, old growth must be defined as uneven-aged, silviculturally overmature forest, with dominant trees exceeding 300 years of age. These stands are considered by most plant ecologists to be approaching or to have achieved a climax or steady-state condition of forest succession. To a timber manager, such a stand might be classified as decadent, with a relatively low rate of growth compared to younger, or even-aged stands. Although the rate of increase of wood-fiber production is low or constant in such old-growth stands, vigor of individual trees can still be quite high, with many trees having full, well-developed crowns, strong root systems, and tall, straight boles relatively free of decay. Others may be decadent, and when they die their place in the forest becomes occupied by herbs, shrubs, and young trees.

It is important to recognize that the above definition refers very broadly to the concept of old-growth forest presented here. The forest ecosystem in southeast Alaska is highly diverse, comprising a mosaic of different forest communities in a variety of topographic situations and geographical locations.

Factors such as slope, slope exposure, elevation, soil type, and drainage pattern affect the composition, productivity, and character of the forest stand. In addition to these relatively stable topographic and site differences, stand history involving such events as windthrow, landslides, insect infestations, disease, and fire greatly affects the overall diversity of the forest.

From the standpoint of providing wildlife habitat for the greatest number and diversity of indigenous species, old growth with its inherent fine-grained diversity is the optimum forest condition. The structure of old growth in a vertical direction is extremely complex, rising from a diverse understory plant community, to a shrub layer of woody browse plants of variable height, and on through a multi-layered tree canopy extending perhaps to 200 feet above the forest floor. Downed trees in various stages of decay on the forest floor, dead and decaying snags, arboreal lichens, and mistletoe infestations contribute to the vertical diversity of an old-growth stand.

Old-growth forest is also highly diverse in a horizontal plane. Site factors combined with stand history create an irregular pattern within the forest which often changes significantly from one acre to the next. In unmanaged forests, a wide range of stand ages occurs, from predominately uneven-aged stands many hundreds of years old, through even-aged stands or small patches several hundred years old, to recently established seedlings and saplings. Even-aged patches resulting from natural causes such as windthrow and landslides are scattered irregularly throughout uneven-aged stands. In the uneven-aged stands, individual trees range in age from one to a thousand years, and death of old trees and replacement by new trees is a continual process which provides for the greatest diversity of tree ages, diameters, heights, canopy layers, and understory conditions to be found in the forest. It is in old-growth, climax

forest that adequate time has allowed individual stands to fully respond to topographic and site characteristics and thus contribute to overall forest diversity. The high diversity characteristic of steady state or climax ecosystems has been discussed generally by Odum (1971) and more specifically for northern hardwood forests by Bormann and Likens (1979).

Even-aged silviculture on a 90 to 125 year rotation is the Tongass Forest timber management system and will probably also be followed on State and Native lands. The harvest method utilized is clearcutting. Following removal of the forest overstory, the site is left in a disturbed condition with variable amounts of forest residue or slash. The site is relatively unproductive in terms of shrub and herb development for 1 to 2 years following harvest. For a short period beyond this time, there is much new plant growth including forbs, ferns, shrubs, and conifer seedlings. Ten to fifteen years following cutting, conifers usually begin to dominate the site, and after 25 years most understory shrubs and forbs are shaded out, reducing plant diversity and biomass of wildlife forage. From this time to about 30 to 35 years post-logging, the site becomes totally dominated by conifers. Generally, in southeast Alaska, unmanaged second-growth stands are heavily overstocked. From stand age 40 to normal rotation, tree spacing increases as some trees die and other trees increase in size. Throughout this period the canopy remains essentially closed. In contrast to old-growth forest, even-aged, second-growth forests are comprised of trees of relatively uniform diameter, height, spacing, and canopy coverage. This dense, uniform canopy prevents much of the solar radiation from reaching the forest floor and thereby reduces the abundance of vascular plants. The structural diversity of the even-aged stand is also greatly reduced since the stand has not had time to achieve its full potential in relation to site characteristics. Harris (1974) and Harris and Farr (1979) present more on southeast Alaska forest succession.

Under intensive management, second-growth forests may be thinned occasionally, thus permitting a temporary development of shrubs and herbs. The major purpose of thinning, however, is to reduce competition and stimulate growth of the remaining trees, whose crowns soon fully occupy the canopy layer again. This results in virtually the same monomorphic habitat condition as prevailed before, the result of a silvicultural technique designed to increase timber production. Minimal habitat diversity occurs on the forest floor, in the canopy, and in between. Economics of thinning presently preclude its widespread use as a management technique.

The length of time required for an even-aged stand to develop into a climax condition has not been well documented. Some ecologists suggest that some stands may approach climax after 200 to 300 years or longer. The length of time probably varies with site conditions. However, once a stand is placed under the standard rotation (90 to 125 years) it will never again achieve the structural and ecological condition of old-growth or climax forest. The result is a significant and permanent reduction in ecological diversity, and conversion of valuable wildlife habitat to a successional stage of inferior value to many wildlife species. It is important to recognize that the value derived from the early clearcut stage is extremely short-lived relative to the sterile second-growth forest which dominates the rotation period. Furthermore, during the critical winter period in Alaska, deep snow often covers young clearcuts.

Wildlife-Commercial Forest Relationships

What are the relative values of clearcut, regrowth, and old-growth forest for each of the wildlife species indigenous to the coastal forest of the Tongass? How are individual species utilizing old-growth? What specific characteristics

of old-growth are most important to different species? Answers are still largely unknown. However, recent research, primarily on Admiralty and east Chichagof Islands, has provided specific insight into the habitat requirements of Sitka black-tailed deer (Leopold and Barrett 1972, Bloom 1978, Schoen 1978, Schoen et al. 1979, Barrett 1979, Wallmo and Schoen 1980).

Adverse winter conditions and avilibility of suitable winter habitat are the most important limiting factors on deer populations throughout most of southeast Alaska. Winter range is generally from sea level to 700 or 800 feet elevation and from the beach inland one-half mile, or more in some areas. Ongoing research indicates that preferred habitat within this range is characterized by uneven-aged stands of mixed hemlock and spruce, with trees being large, irregularly spaced, having well developed crowns with broken canopy, and with the understory characterized by an abundance of blueberry and herbaceous, evergreen plants. In such stands, the large trees with heavy crowns are strong and broad enough to intercept large amounts of snow. This allows deer greater freedom of movement and increases food availability. Variable tree spacing and crown structure characteristic of most uneven-aged, old-growth stands permit sufficient light to reach the forest floor so that an abundant forb/shrub plant community develops. In preferred deer winter range, this plant community is composed largely of bunchberry (Cornus), trailing bramble (Rubus), and blueberry (Vaccinium). In general, the higher volume, old-growth timber stands (30,000 board feet/acre and above) receive the most deer use during winter. This is attributable to their component of very large, old trees which accounts for the conditions described above. Such old-growth stands occur on the most productive forest sites.

The value of old-growth forest to wildlife is not unique to southeast Alaska. Other investigators have recently described the importance of old growth to deer

on Vancouver Island, British Columbia (Gates 1968; Jones 1974, 1975; Weger 1977; Bunnell 1979; Hebert 1979), to elk and deer in the Olympic National Forest in coastal Washington (Taber and Raedeke 1980a, 1980b), and to elk and several other forest birds and mammals in Oregon (Lumen and Neitro 1980).

Detailed knowledge of the available timber and past and projected timber harvest is necessary to accurately assess impacts on wildlife habitat. Timber in the Tongass has been inventoried by aerial photo-interpretation (Hutchison 1967, Hutchison and LaBau 1975). The most recent forest inventory, completed in conjunction with the Tongass Land Management Plan (USDA, Forest Service 1979), also included information on forest composition and land type. Such information, which describes the forested land in terms of successional stages, tree species composition, and volume classes, as well as identifying valuable wildlife habitats, is designed to enable forest managers to make the "best" use of the multiple resources.

Roughly 5 million acres of the 15 million acre Tongass National Forest are classified by the Forest Service as commercial quality forest land, or land capable of producing at least 20 cubic feet of wood volume per acre per year and having a net standing timber volume of 8,000 board feet per acre or more. Within this commercial forest land, stands are further classified according to size class or age. The vast majority of commercial forest land (approximately 92 percent) is classified as old-growth sawtimber, or stands over 150 years old. These old stands are recognized as having reached or passed silvicultural maturity. From a timber management standpoint, they must be harvested first to increase stand productivity for wood volume. The percentage of commercial forest land in the remaining size classes is relatively small and results

mainly from previous timber harvesting. The classes include young sawtimber, poletimber, seedling/ saplings, and recent unstocked cutovers.

As already discussed, this old-growth sawtimber class is an extremely diverse ecological community. Different forest types within this old-growth class are of varying importance to different wildlife species. Within the old-growth sawtimber classification, the forest inventory recognizes four different volume classes: (1) 8,000-20,000 bf/acre, (2) 20,000-30,000 bf/acre, (3) 30,000-50,000 bf/acre, and (4) over 50,000 bf/acre. The volume of an old-growth sawtimber stand is generally expressed in terms of the net board-foot volume of standing timber per acre. In commercial forest land this can range from 8,000 board feet per acre to over 100,000 board feet per acre. The character or nature of the forest community across this range varies dramatically and reflects site productivity. The distribution of old-growth forest acres among these classes is not even; the great bulk of acres is in the lower volume categories, reflecting low site productivity. Less that 11 percent of all commercial forest land (4 percent of the total Tongass Land acreage) occurs in the 30,000-50,000 bf/acre class, and less than 2 percent (0.6 percent of total land acreage) falls in the over 50,000 bf/acre class. Thus, while large acreages of forest habitat are available to wildlife, those species dependent on high-volume old growth occupy a relatively limited habitat - a habitat which is limited even more when additional constraints, such as a species' requirements for low-elevation timber and/or timber near saltwater, are considered.

Information on the past timber harvest trends permits an evaluation of the more recent man-caused changes in forest habitat in southeast Alaska. Annual harvest data (On file, USFS, Timber Management, Juneau) provide information on species composition and net scaled volume (scaled volume averages about 74 percent of

inventory volume) of timber harvested. The net scaled volume of timber cut on the Tongass is available by year from 1905 to the present, but data collected prior to 1948 are relatively incomplete. Information on specific locations and acreages of previous cuts is, unfortunately, quite limited.

Productive forest sites supporting high volumes per acre are usually more operable economically for timber harvest than those supporting low volumes per acre. In addition to the large volume contained in these stands, such stands typically contain sawlogs of the largest diameter and highest quality. Furthermore, stands of highest volume generally occur at lower elevations and close to tidewater - factors that make them highly desirable from a harvesting standpoint. An analysis of past timber harvest data suggests that the annual inventory volume harvested between 1956 and 1979 has averaged close to 50,000 board feet/acre. Considering that less than 2 percent of the commercial forest land is classified at 50,000 board feet/acre (inventory volume), this represents an extremely high proportion of high-volume timber. Furthermore, most of this high-volume timber has been cut from low elevations close to tidewater. This trend, if continued, will seriously affect wildlife dependent on these particular forest communities.

The Department of Fish and Game has addressed the question of desired levels of wildlife to be maintained on the Tongass Forest (Letter from R. Skoog to J. Sandor, November 28, 1978). The Department does not believe that determination of desired levels is a biologically sound way to manage wildlife resources on the Tongass. Rather, such management should be based upon the reasoned balance of habitat values present in the Forest. The Department's goal is to maintain the maximum numbers of wildlife that the existing habitat can support in an ecologically sound manner.

It is recognized, however, that logging will occur and that deer carrying capacity will be reduced and that other wildlife species dependent on these plant communities will be affected. Any consideration of desired levels by the Department and the Board of Game should include involvement of the public in Alaska and other states after they have been completely informed on wildlife-timber management relationships.

Data on timber volume and harvest and deer-forest relationships are presented graphically in the appendix.

Legislative and Policy Guidelines - Tongass Forest

Federal laws and management policy mandate multiple use of National Forest lands. Major legislation includes the Creative Act of 1891, the Multiple Use-Sustained Yield Act of 1960, the Forest and Rangeland Renewable Resources Planning Act of 1974, the National Forest Management Act of 1976, and the Federal Land Policy and Management Act of 1976. Current management policy on each of the National Forests reflects this legislation. Major policy and planning documents for the Tongass Forest include the Southeast Alaska Area Guide (1977), the Tongass Land Management Plan (1979), and the Regional Plan now in preparation, which will supercede the Area Guide.

A summary of the various Acts as they relate to wildlife will not be presented here. However, pertinent sections of the Southeast Alaska Area Guide will be cited. The Area Guide is a guide and policy document which summarizes legislative intent as it should be applied to management of the Tongass Forest. The Guide "describes the planning area, the public issues that the Guide strives to resolve, and the active machanisms for land and resource allocation. It also

describes the forest practice or coordination policies that need to be implemented in day-to-day resource management situations to ensure compatability between resource uses." The Guide states "This Guide carries more than just words; it also carries a commitment to a quality job of resource management. This commitment means that if funding is not adequate to ensure quality control for a targeted output, whether it be timber volume or acres of habitat enhancement, then the output will be reduced rather than risk sacrificing a quality job."

The Area Guide provides the public with major policy statements for each of the renewable resources. Several of the major statements concerning wildlife follow.

> "The Forest Service recognizes wildlife resources as a major component of the Tongass National Forest and the source of numerous important products, benefits, and services. Wildlife resources are to be considered no more or no less important than the other renewable resources of the National Forest."

> "Management decisions concerning wildlife habitat will be based on sufficient knowledge, information, and data to provide a sound basis for professional judgment."

> "The Forest Service recognizes the importance of wildlife habitats, and timber harvesting will be planned to protect or enhance that habitat. Habitat guides, which could protect or enhance the various species, will be jointly developed by the Forest Service and Alaska Department of Fish and Game. Existing information shall be utilized until such guides are prepared."

In 1979, regulations were adopted by the Forest Service for implementation of the National Forest Management Act of 1976 (Federal Register, Vol. 44, No. 181, 17 September 1979). Key points from these regulations (Forest Planning Actions, 36 CFR 219.12) follow.

> "(g) Fish and wildlife habitats will be managed to maintain viable populations of all existing native vertebrate species in the planning area and to maintain and improve habitat of management indicator species. To meet this goal, management planning for the fish and wildlife resource will meet the requirements set forth in paragraphs (1) through (7) of this paragraph and be guided by Chapter 2620, Forest Service Manual."

Management indicator species are defined in paragraphs (1) through (7) as:

> "Endangered and threatened plant and animal species...species with special habitat needs that may be influenced by planned management programs; species commonly hunted, fished, or trapped;..... Population trends of the management indicator species will be monitored and relationships to habitat changes determined."

These key points re-enforce some of the major policies found in the Area Guide.

In response to the Federal Land Policy and Management Act of 1976, the Tongass Land Management Plan (TLMP) was developed. TLMP is a 10-year allocation process whereby various portions of the forest are to be managed for different goals. The forest was divided into management units which were classified into four major land use designations (LUD). LUD's I and II, where timber harvesting is not

permitted, contain 8.1 million acres, of which 1.9 million acres are classified as commercial forest. LUD's III and IV, where cutting will occur, contain about 7 million acres, of which 3.1 million acres are commercial forest. In general, except for Admiralty Island, areas with the highest timber volumes are classified as LUD's III and IV. The high volume LUD III and IV timber areas also have high wildlife values. For the final Tongass Plan, retention factors or areas to be left uncut for wildlife and related values, were reduced to levels below those recommended by the interdisciplinary teams that drafted the plan. TLMP provides for an average annual allowable harvest of 450 million board feet of timber or approximately 18,000 acres a year. This is based on the industry's scaled volume and is equivalent to approximately 550 million board feet inventory volume.

The Tongass Land Management Plan (TLMP) designated 17 acres as basically wilderness, including Admiralty Island and Misty Fiords. These areas were subsequently proposed for wilderness designation through the Federal Roadless Area Review Evaluation II (RARE II) and in d-2 Alaska Lands bills. Wilderness classification is not necessary for wildlife, but it provides a better guarantee that habitat will not be altered than does non-wilderness classification. Other than Admiralty Island, much of southeast Alaska proposed as Wilderness is not highly productive land. Wildlife would benefit more if less glaciated and high mountain habitat and more forested habitat became Wilderness.

As of this writing (11/13/80), the Alaska Lands Bill had been passed by Congress and sent to the President for signature. The Bill mandates a timber harvest of four billion five hundred million board feet from the Tongass Forest over a 10-year period. It also provides to the Secretary of Agricultures at least $40 million annually or as much money as is necessary to attain this harvest.

Guidelines for State and Private Lands

The State Forest Practices Act provides for establishing acceptable methods of managing and harvesting forest resources on private, municipal, and State lands within Alaska. The Departments of Natural Resources and Environmental Quality are directed by the Act to develop regulations and "Best Management Practices." The Act is strongly orientated to water quality and anadromous fish, with little direct protection for wildlife on private lands.

According to Section 22 (k) of the Alaska Native Claims Settlement Act, timber harvest on Native lands will be managed for 10 years under the same guidelines for managing timber harvest on Forest Service land. This has been interpreted to mean for 10 years after the Act became effective, or 1982. The State Forest Management Act will apply after 1982.

CURRENT SITUATION AND ACTIONS TAKEN

The Alaska Department of Fish and Game considers habitat alteration from clearcut logging and its impact on wildlife one of the most serious problems it faces in southeast Alaska and is actively conducting research on wildlife-forest management relationships. A study of Sitka black-tailed deer in cooperation with the Forest Service Forestry Sciences Laboratory has been in progress since 1976. Mountain goat-forest relationships have been studied by the Department of Fish and Game and the Forest Sciences Laboratory in the Juneau area since 1976. Goat studies will terminate in the Juneau area and begin in southern southeast Alaska in 1980, and a new research position to conduct this study will be filled in the fall of 1980. Marten studies related primarily to effects of habitat changes will begin in 1980. The Department supported and is now continuing a study on Vancouver Canada geese, part of which defines habitat needs in forested areas. The Forest Service

Forestry Sciences Laboratory has supported studies on small mammal-forest relationships, forest succession and understory plant development, and effects on understory species of thinning second-growth stands. The need for research was emphasized by a recommendation of the Alaska Department of Fish and Game to the Alaska Council on Science and Technology. In March 1980, the Department stated that its greatest terrestrial wildlife research need statewide was studies of the effects of clearcut logging on wildlife habitat.

The Department is involved with management as well as research oriented activities. It provided representatives to the Wildlife Task Force and on the Interdisciplinary Team that made recommendations for the Tongass Land Management Plan. Department representatives have participated in the Interdiciplinary Team process which lays out cutting plans for timber sales. A new position created in the Game Division to deal exclusively with effects of timber harvest on wildlife was filled in August 1980.

The Department commented on the Draft Tongass Land Management Plan (TLMP) in August 1978. Briefly stated, Department comments were:

1. TLMP should be deferred until after passage of an Alaska Lands Bill.

2. TLMP should be deferred until a better data base is available for both timber volume and wildlife.

3. Economics of timber harvest as it affects guiding, trapping, and viewing of wildlife should be analyzed along with economics related to timber industry jobs.

4. Wildlife habitat ratings on which TLMP is based often do not reflect true

values. Ratings were based primarily on the number of species present rather than the importance of individual species or the value of areas to users. The major problem resulting is that mainland areas with more species were ranked on the same scale as the islands which have fewer total species but high wildlife values.

5. To attain a balanced resource allocation, Alternative D, or as a bottom line, Alternative C with some modification, were preferred alternatives. Alternative C was similar to the IDT alternative. Both alternatives were rejected for the final TLMP and a more intensive timber harvest plan adopted.

The Department and the State commented on the Draft Environmental Impact Statement for the 1981-86 Alaska Lumber and Pulp sale. A major concern was the lack of discussion regarding loss of old-growth forest as an ecosystem under present rotational cutting cycles. This was not adequately responded to in the Final Environmental Impact Statement. The Department pointed this out in its response to the Impact Statement and also stated that once the Forest Service acknowledges that the climax forest ecosystem is non-renewable under present rotational periods, it should then explain how this does not contravene the multiple use philosophy and requirements for diversity of the National Forest Management Act of 1976. The Department also made the point in comments on the 1981-86 Alaska Lumber and Pulp sale that the importance of the diverse climax forest ecosystem to wildlife is considered a key in providing for diversity of wildlife habitat.

The Department also developed a simulation model with timber volume, age class, past timber harvest, projected timber harvest, and deer habitat suitability ratings as the components. Used as a management/research tool, the model can provide insight on how different cutting plans might affect habitat suitability.

Action by the Alaska Chapter of the Wildlife Society emphasizes the seriousness of the consequences of present management practices to wildlife. In May 1979, this group of professional biologists, with members from most agencies managing wildlife and habitat in Alaska, and also from the University of Alaska, pointed out the non-renewability of old-growth forest, loss of diversity, and adverse effects of wildlife of present management practices; the need for additional biological and timber volume information; the need to determine if present forest management practices meet mandated multiple-use objectives; the need to defer more cutting of high-volume, old-growth forest, or at least, to cut it only in proportion to its occurrence; and the need to inform the public of irreversible consequences to wildlife resulting from present management practices. The Alaska Chapter of the Wildlife Society is also appealing the 1981-86 Alaska Lumber and Pulp Timber Sale on the basis that the impact statement for the sale is inadequate and that requirements of the National Forest Management Act and Alaska Area Guide are not being met. This action has also received the support of the Alaska Board of Game and the American Institute of Fisheries Research Biologists.

OPTIONS FOR CONSIDERATION

1. Completely inform the public of the long-term irreversible consequences to habitat and wildlife of present cutting plans. This should be through a concerted public communication effort by both the State and Forest Service. Forest managers should consider public response as timber and wildlife management plans are developed.

2. Expand research on wildlife-forest management relationships.

3. Continue and increase Department participation in the IDT process and in forest planning with more emphasis on timber sale layout. Establish a more formal mechanism for transmitting Department recommendations independent of the IDT process.

4. Review the State Forest Practices Act for possible revision so that it more adequately addresses wildlife concerns.

5. Establish a close working relationship between the Department and private land owners so they are aware of wildlife-logging relationships.

6. Consider permanently retaining remaining high-volume old growth of more than 50,000 board feet per acre for wildlife except by special exemption agreed to mutually by the Department and the Forest Service.

7. Consider cutting old growth of 30,000 to 50,000 board feet per acre only in proportion to its present occurrence for the next 10 years. Benefits to wildlife would be retention of high-value habitat. Adverse effects would be the increased acreage affected by cutting to obtain the same volume of timber. This cutting policy could be examined after 10 years and modifications considered.

8. Consider selective cutting with techniques not yet tried in Alaska such as balloon and helicopter logging as an alternative to clearcutting. Techniques as they are developed should be evaluated for their effects on wildlife.

9. Consider either major islands, because they are distinct units with major water barriers to colonization, or management units as proposed for Forest Service Regional Plans, whichever are smaller, as the basis for individual planning units.

10. Examine TLMP and consider possibility of revision based on the following:

a. Consistency with State responsibility to maintain wildlife on public lands and the related land owner responsibility to maintain wildlife habitat.

b. Consistency with the Natural Forest Management Act, the Alaska Area Guide, and other relevant legislation and guidelines.

c. Adequacy of rating system for wildlife habitat.

d. Adequacy of retention factors for wildlife.

e. Assumptions and calculations on amount and quality of winter deer range.

f. Adequacy of TLMP in light of new information.

10. Develop a method to give permanency to retention factors or areas left uncut for wildlife in LUD's III and IV.

11. Develop close cooperation between the Department and the Forest Service in developing the Forest Service Regional Plan. This plan should be compatible with the objectives and responsibilities of the Department and be designed so as to insure adherence to its policies in the day-to-day management of the Tongass Forest.

12. Maintaining present levels of employment in the timber industry in southeast Alaska, a stated objective of the State, should be examined relative to additional timber harvest from Native and State lands. As people are employed in industry resulting from timber harvest on Native and Stare lands, it may be possible to reduce cutting of National Forest lands and still retain the present level of employment.

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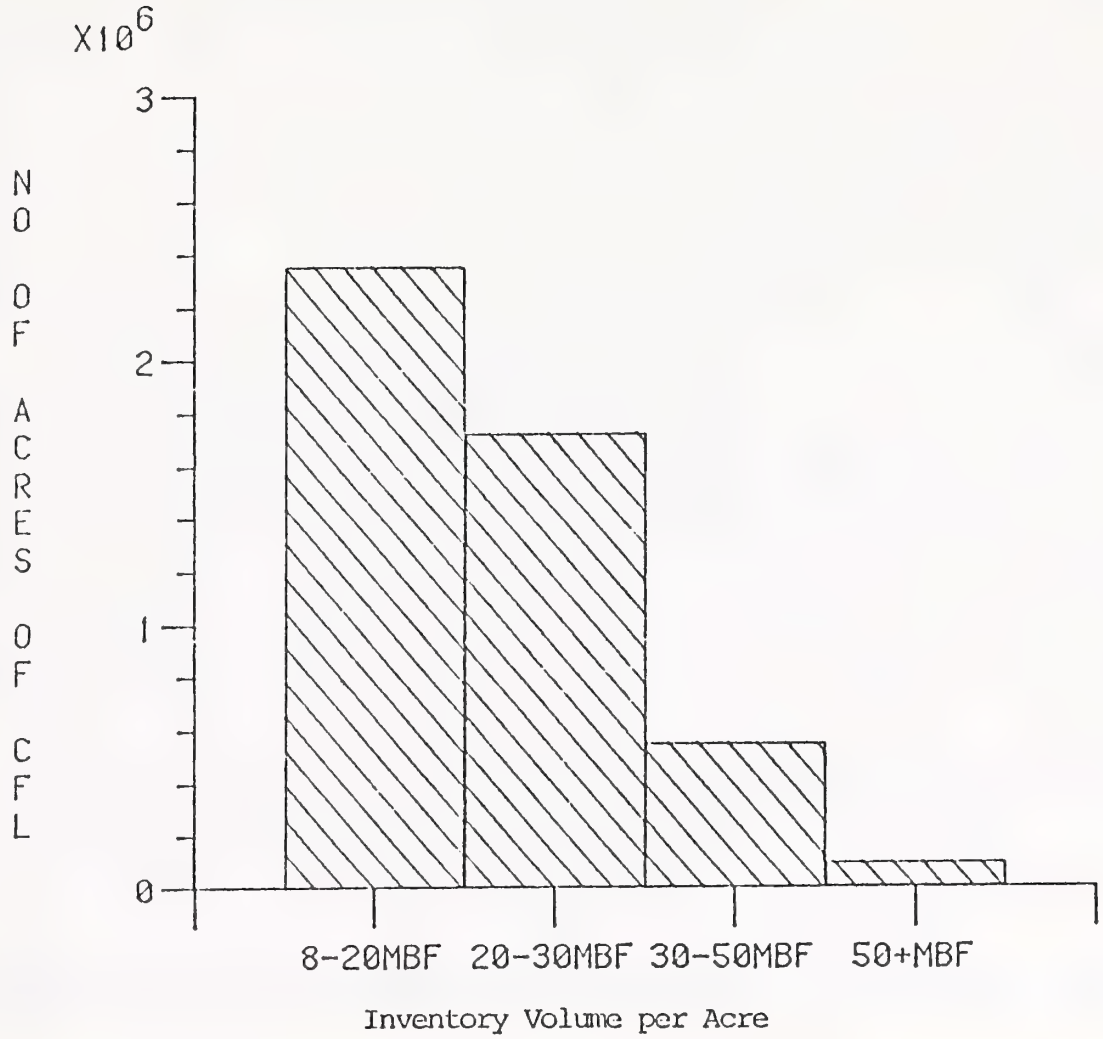
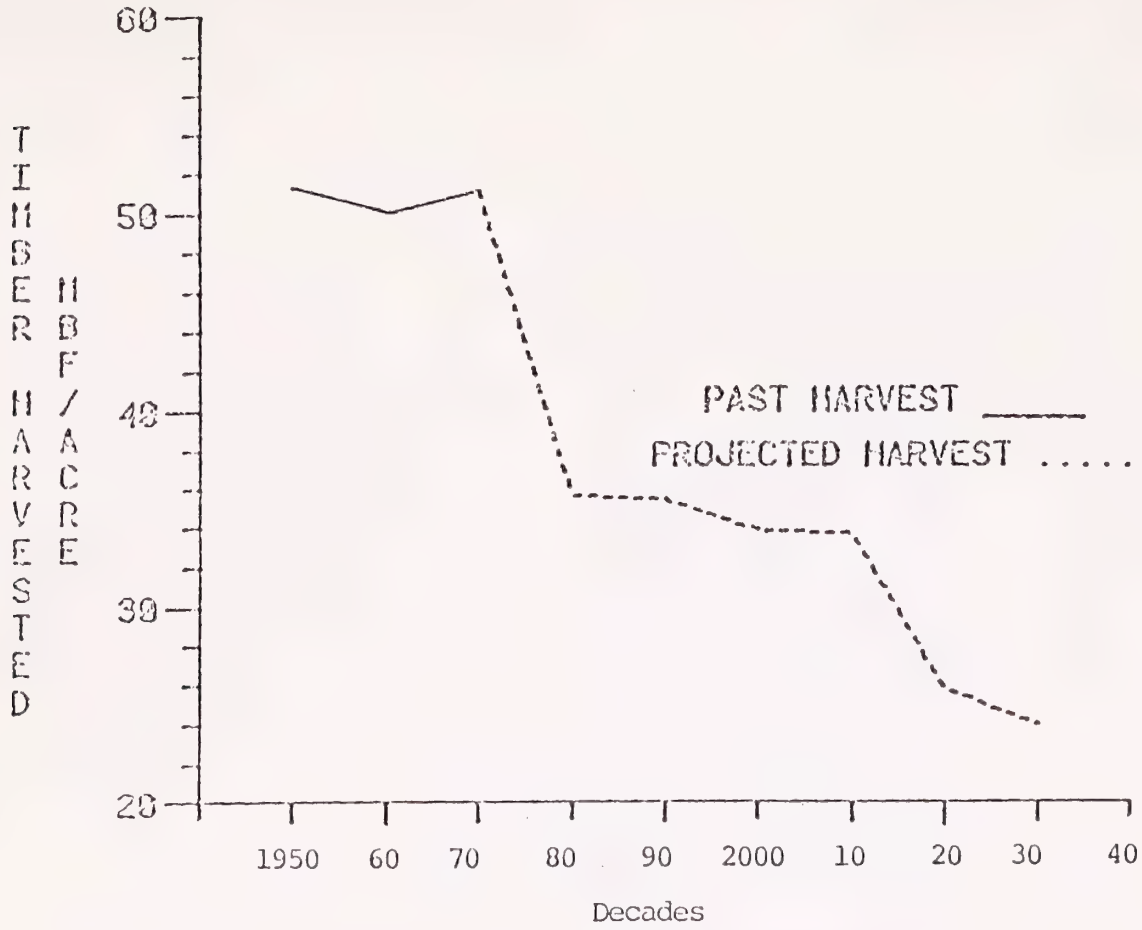
A P P E N D I X

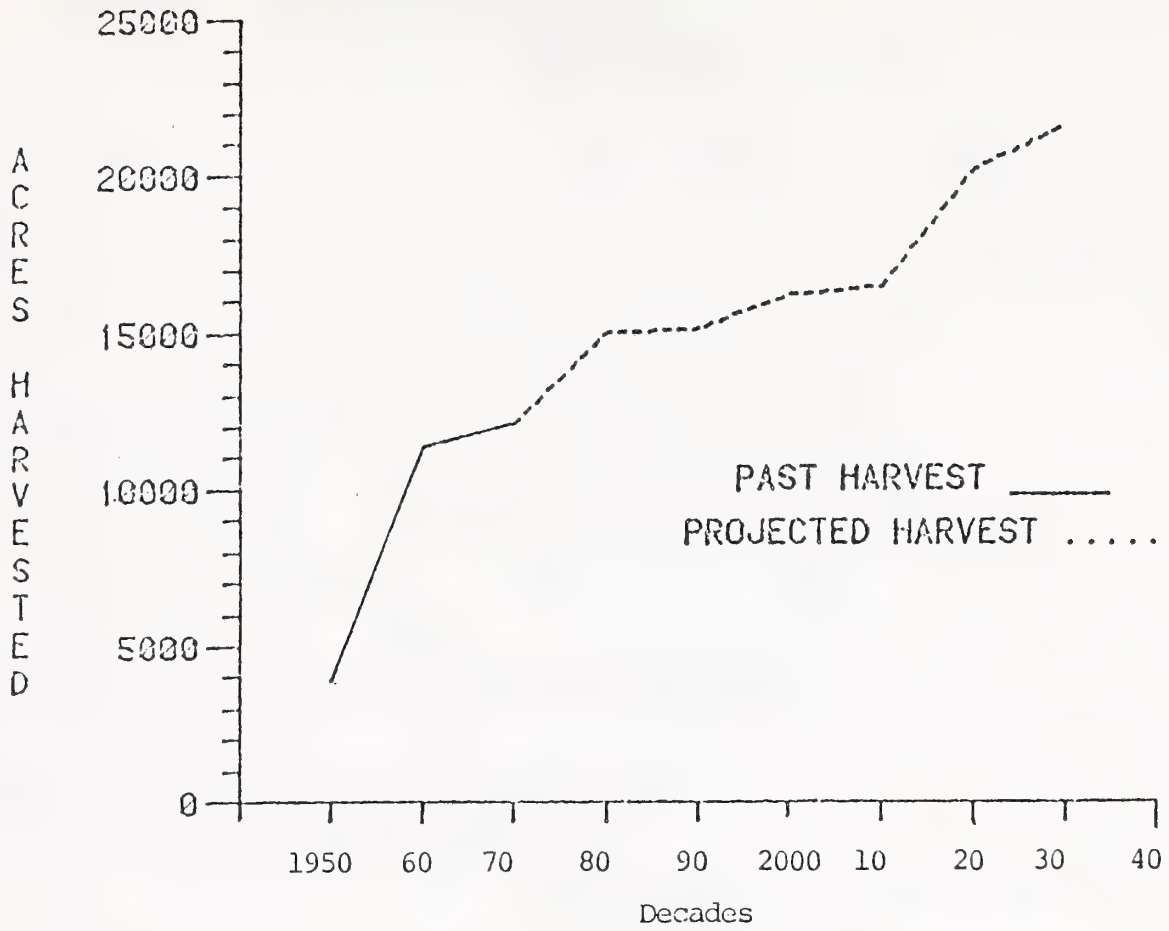


ACRES OF COMMERCIAL FOREST LAND BY VOLUME CLASS



MEAN ANNUAL INVENTORY VOLUME/ACRE OF OLD-GROWTH TIMBER HARVESTED FROM THE TONGASS FOREST BY DECADE

(data prepared by ADF&G from USFS harvest records and RAM model)



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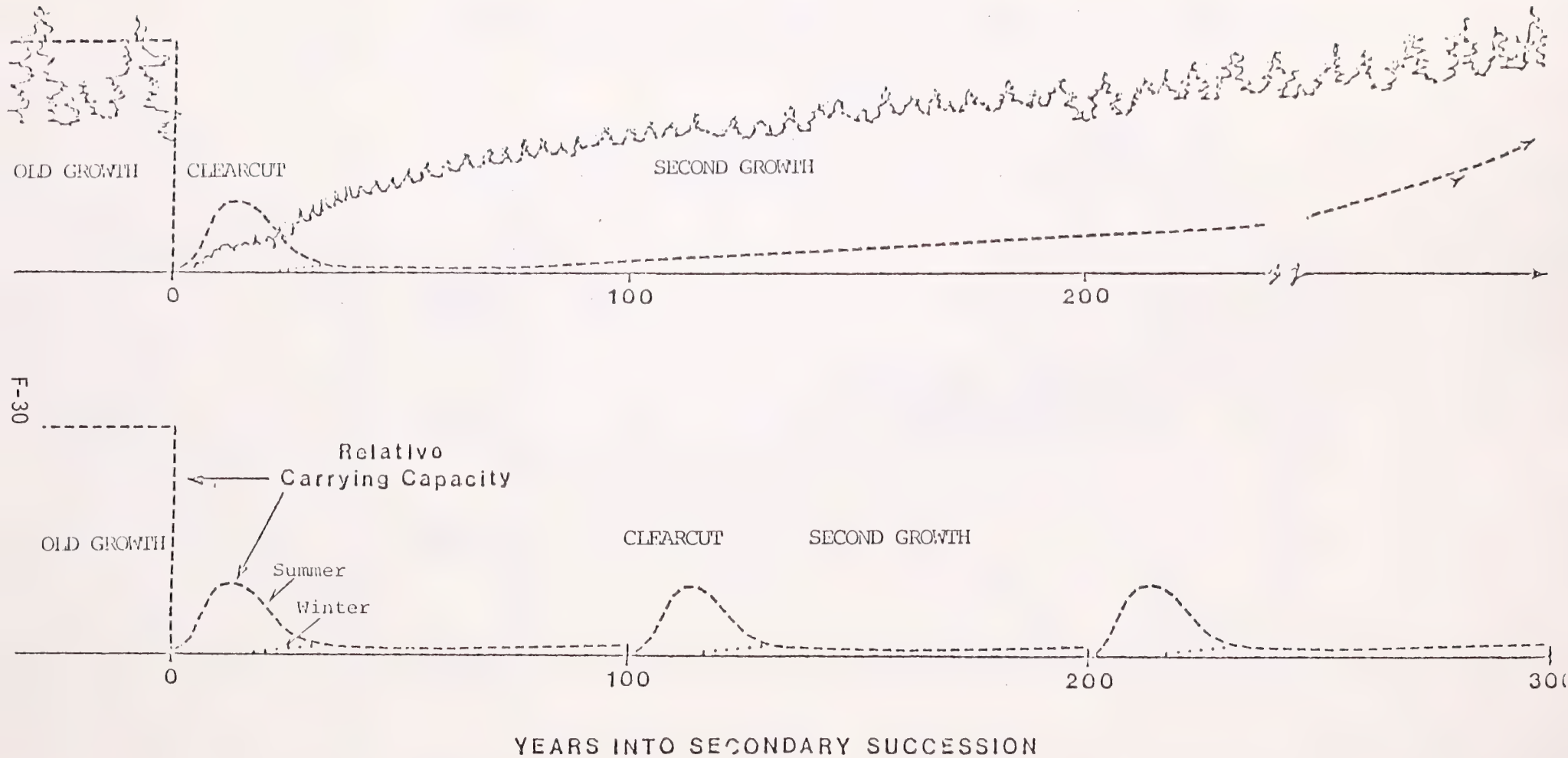
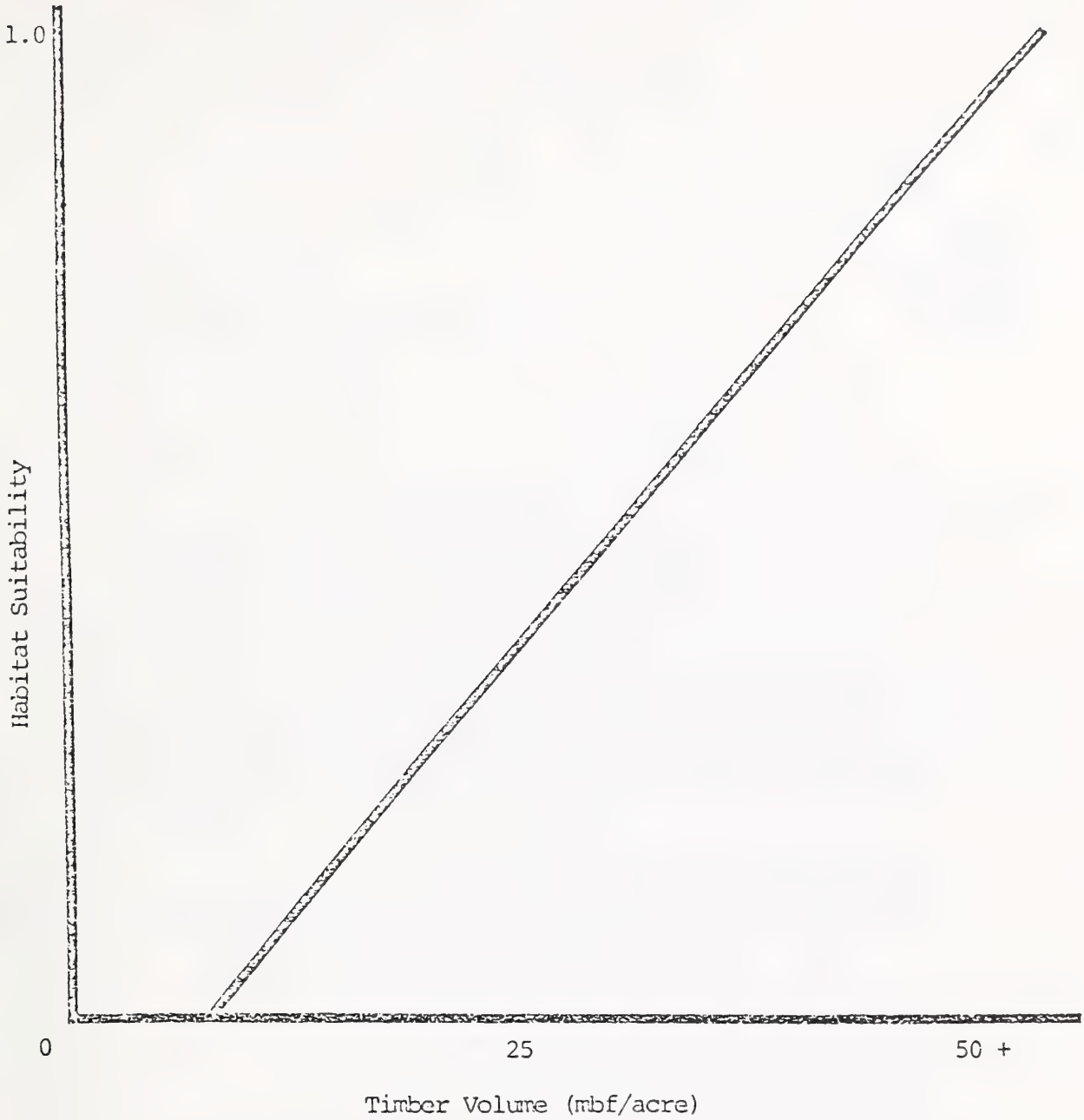


MODEL OF THE IMPACT ON DEER CARRYING CAPACITY OF EVEN-AGED SILVICULTURE ON A 100 YEAR ROTATION



MODEL OF WINTER DEER HABITAT SUITABILITY RELATIVE TO OLD GROWTH TIMBER VOLUME

APPENDIX G

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

P. O. Box 1628, Juneau, AK 99802

2600
May 18, 1981

Dr. Ronald Skoog
Commissioner
Alaska Department of Fish & Game
Subport Building
Juneau, Alaska 99801

Dear Ron:

We appreciate your sharing the November 1980 paper on wildlife and forest practices which sets forth ADF&G concerns. The paper is professionally done, and offers constructive recommendations. Perhaps the best way to respond is to comment on each of the options for consideration beginning on page 18.

1. Option: Completely inform the public of the long-term irreversible consequences to habitat and wildlife of present cutting plans. This should be through a concerted public communication effort by both the State and Forest Service. Forest managers should consider public response as timber and wildlife management plans are developed.

Comment: We enthusiastically support any measure that will help inform the public about National Forest management. We thought we were doing an adequate job, but obviously need to do more. We would appreciate your suggestions on how we might better communicate.

2. Option: Expand research on wildlife-forest management relationships.

Comment: We agree that more research is needed on wildlife-forest management relationships. An information needs assessment has been drafted by the Forest Service. ADF&G participation is needed, not only to identify information needs, but also to define areas of responsibility and determine where cooperation would be mutually beneficial.

3. Option: Continue and increase Department participation in the IDT process and in Forest planning with more emphasis on timber sale layout. Establish a more formal mechanism for transmitting Department recommendations independent of the IDT process.

Comment: We welcome the participation of the Department in the IDT process, including timber sale layout, and are pleased that you recommend continued participation. ADF&G formal comments on the draft EAR/EIS now come to the Forest Service through the State A-95 Coordinator, a process that should remain in effect.

4. Option: Review the State Forest Practices Act for possible revision so that it more adequately addresses wildlife concerns.

Comment: Wildlife concerns should be reflected in forest management. Review of the State Forest Practices Act is the perogative of the State Legislature; however, the State Board of Forestry would be an appropriate organization to provide recommendations to the Legislature on this matter.

5. Option: Establish a close working relationship between the Department and private land owners so they are aware of wildlife-logging relationships.

Comment: We believe the development of a close working relationship between ADF&G and private land owners would result in a better understanding of wildlife-logging relationships, and therefore increased benefit to the public.

6. Option: Consider permanently retaining remaining high-volume old growth of more than 50,000 board feet per acre for wildlife except by special exemption agreed to mutually by the Department and the Forest Service.

Comment: The State and Forest Service should jointly (or under a third party contract) assess the impact of this recommendation. A preliminary projection of data indicates the 18,000 acres annually harvested would increase by 25 - 50%. It should also be noted that ANILCA established approximately 5 million acres of wilderness which places 1,500,000 acres of commercial forest land (CFL) and including more than 10,000 acres of high volume old growth in a permanent retention status. Of the 500,000 acres of CFL in LUD II more than 3500 acres are classed as high volume old growth forest. LUD III and IV areas contain approximately 3,500,000 acres of CFL, however only 2,200,000 acres are used for calculation of timber yields in TLMP. From this latter figure 273,000 acres (including 29,000 acres of high volume old growth forest) has been retained for protection of other resources including wildlife and fish.

7. Option: Consider cutting old growth of 30,000 to 50,000 board feet per acre only in proportion to its present occurrence for the next 10 years. Benefits to wildlife would be retention of high-value habitat. Adverse effects would be the increased acreage affected by cutting to obtain the same volume of timber. This cutting policy could be examined after 10 years and modifications considered.

Comment: This is related to No. 6, above, and our comment on the need to project the impact of implementing this is the same.

8. Option: Consider selective cutting with techniques not yet tried in Alaska such as balloon and helicopter logging as an alternative to clearcutting. Techniques as they are developed should be evaluated for their effects on wildlife.

Comment: A 1979 cooperative agreement involving Alaska Lumber and Pulp, Pacific Northwest Forest and Range Experiment Station, and Alaska Region of the Forest Service established a research and demonstration program in this general area. Objectives of the program are to:

a. Determine cost effectiveness of a running skyline, interlocking line boom yarder.

b. Determine cost effectiveness and efficiency of advanced computer-assisted skyline layout.

c. Determine if decreased soil disturbance from log suspension will meet both silvicultural and watershed management objectives.

d. Use a variety of silviculture systems and cutting prescriptions to achieve silvicultural landscape management and fish and wildlife habitat objectives.

Under d. above, tests of both shelter-wood and selection systems will be tried with a skyline yarder over the next several years.

We will also evaluate the utility of a heavy vertical lift system called Heli-Stat in Southeast Alaska during 1984. This experimental system combines the capabilities of four helicopters with a helium filled balloon.

At the present time, we have no firm plans for selection cutting by balloon or helicopter because shelterwood cutting provides some of the benefits of selection cutting yet permits the regeneration of Sitka spruce. Current research indicates that selection cutting usually does not allow the regeneration of Sitka spruce. We would consider selection cutting if new information indicated that this system will achieve desired forest management objectives.

9. Option: Consider either major islands, because they are distinct units with major water barriers to colonization, or management units as proposed for Forest Service Regional Plan, whichever are smaller, as the basis for individual planning units.

Comment: We will consider the need to change management area boundaries during the revision of TLMP. In the meantime, we will recognize wildlife and fisheries values through analysis of individual projects.

10. Option: Examine TLMP and consider the possibility of revision for several reasons.

Comment: Congress during the discussion of the Alaska National Interest Lands Conservation Act and in passage thereof reviewed and revised TLMP and provided direction on revision. Some changes were made in land allocation, and by requiring a number of reports, Congress reserved the right to make further adjustments. The first amendments of TLMP will be made by 1985; the complete revision by 1990. The various options discussed here will undoubtedly be considered by Congress as well as the Forest Service.

11. Option: Develop a method to give permanency to retention factors or areas left uncut for wildlife in LUDs III and IV.

Comment: LUD's I and II provide permanent protection for 2 million acres of CFL as noted in the comment in 6, discussed above. Congress has the sole responsibility to designate wilderness (LUD I) and make other permanent withdrawals. We understand the concern for permanency of retention areas. Accordingly, we have agreed to develop language, to be included in the Master Memorandum of Understanding, or a supplement thereof, for designating areas to be retained, and to notify the ADF&G prior to changing such designation. All such designations, of course, are subject to modification through the scheduled revision of TLMP, which is provided to recognize the changing needs of society as well as adjustments needed to reflect changes in the resource base. The revision of TLMP will consider adjustments in Land Use Designations.

12. Option: Develop close cooperation between the Department and the Forest Service in developing the Forest Service Regional Plan. This plan should be compatible with the objectives and responsibilities of the Department and be designed so as to insure adherence to its policies in the day-to-day management of the Tongass National Forest.

Comment: We welcome participation by ADF&G in preparing the Regional Plan. ADF&G as well as other State agencies have been involved in the development of the plan beginning last year. We will strive to make the Regional Plan compatible, insofar as possible, with the policies, objectives, and responsibilities of the various departments of State Government. The participation and agreement of the State in developing the Area Guide and TLMP show this can be done. The Regional Plan must, of course, be responsive to the statutes that govern National Forest management.

13. Option: Maintaining present levels of employment in the timber industry in Southeast Alaska, a stated objective of the State, should be examined relative to additional timber harvest from Native and State lands. As people are employed in industry resulting from timber harvest on Native and State lands, it may be possible to reduce cutting of National Forest lands and still retain the present level of employment.

Comment: Congress also debated this issue. The harvest levels for National Forest lands as set forth in TLMP and made a matter of statute through enactment of ANILCA considered the contribution to employment from the harvest levels of Native and State lands. Maintenance of current employment levels was predicated on the projected harvest level from the State and Native lands as well as a 450 million BF annual harvest from National Forest lands. Congress will undoubtedly reconsider this and related factors in relation to the studies they have requested. The State should have a strong voice in shaping this new Congressional position.

We hope these comments are helpful in explaining our position. If you wish, we would be happy to discuss these points further.

Sincerely,

JOHN A. SANDOR
Regional Forester

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
P. O. Box 1628, Juneau, AK 99802

2600

JUL 10 1981

Mr. Milstead Zahn
Executive Director
Boards of Fisheries and Game
Alaska Division of Fish and Game
Subport Building
Juneau, AK 99801

Dear Mr. Zahn:

We have received your March 4 letter containing Joint Resolution #80-80-JB adopted by the Boards of Fisheries and Game on December 7, 1980, regarding impacts of clearcut logging on fisheries and wildlife resources. The ten items listed in the Resolution are well stated and reflect the concerns of the Joint Boards on this issue. We have included the Joint Resolution in the draft Regional Plan, which is in the final stages of preparation before distributing to the public for review.

Our response to the ten items listed in the resolution follow. Several of the items are almost identical to concerns expressed by the Department of Fish and Game in their November 1980 report to the Joint Boards regarding wildlife and forest practices in southeast Alaska. In these cases, our responses are identical to our reply to the Department.

Item 1. The public be fully informed by the Department of Fish and Game and the U.S. Forest Service of the long-term known and potential impacts of clearcut logging on fish and wildlife habitat and subsequent population levels.

Response: The Forest Service is highly supportive of any measure that will help provide full public disclosure of the resource management programs on the National Forest. We will continue to work with the Department of Fish and Game to provide this information to the public. Your recommendations on how we can improve this process would be most welcome.

Item 2. The Tongass Land Management Plan be revised by the Forest Service to provide more protection for valuable fish and wildlife habitat and reflect recent research findings.

Response: Passage of the Alaska National Interest Lands Conservation Act (ANILCA) established the direction we will follow in the revision of the Tongass Land Management Plan (TLMP). The Act directs the Forest Service to prepare a number of reports for Congress prior to 1985 and subsequently

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regarding various resources of the Tongass National Forest. We will need to consider any guidance the Congress wishes to provide in amending and revising TLMP. We intend to amend TLMP by 1985 and revise it by 1990. The habitat needs of the wildlife and fisheries resources will be considered and included in the amendment and revision process.

Item 3. If information is not adequate to ensure the protection of fish and wildlife resources, then targeted timber outputs should be reduced by the Forest Service rather than risk damage to these resources.

Response: ANILCA, which, for the most part, confirmed the land allocations in TLMP, requires that 4.5 billion BF of timber be made available to industry from the Tongass National Forest each decade. We believe we can achieve this level while providing for public use of fish and wildlife resources. We intend to work jointly with the ADF&G to develop additional means of providing protection for fish and wildlife resources while meeting Congressional direction.

Item 4. Research be expanded by both the Department of Fish and Game and the U.S. Forest Service to determine the effects of timber harvest on fish and wildlife habitat requirements, and as new information becomes available, results be incorporated in the Forest Service planning process.

Response: We will continue to work closely with the Forestry Sciences Laboratory and the Department of Fish and Game in the development of a strong and responsive research program that addresses the relationships between timber harvest and wildlife and fish habitat needs.

Item 5. In all future timber harvests by the State and U.S. Forest Service, timber stands of more than 50,000 board feet per acre not be cut and other volume classes be cut only in proportion to their occurrence.

Response: The Forest Service and the Department of Fish and Game have agreed to jointly assess the impact of this recommendation on the wildlife and timber programs on the Tongass National Forest. A preliminary projection of data indicates the 18,000 acres annually harvested would increase by 25 - 50 percent. It should also be noted that ANILCA established approximately 5 million acres of wilderness which places 1,500,000 acres of commercial forest land (CFL) in a permanent retention status. In addition, there are more than 500,000 acres classified as Lud II. TLMP states that no timber harvest will be allowed in LUD II areas. Of a total area of 17.0 million acres on the Tongass National Forest, present plans only allocate 3.5 million acres to CFL. Of this, 2.2 million acres are included in the land base available for timber harvest in TLMP. Of the 2.2 million acres included for Timber harvest, an additional 276,000 acres will be retained for wildlife and other purposes during the plan period.

Item 6. Multiple use management of all resources be maintained by the U.S. Forest Service on the remaining lands not withdrawn for wilderness management nor selected by Native Corporations.

Response: As mandated by Congress in a number of Acts including the Multiple Use Sustained Yield Act of 1960 and the National Forest Management Act of 1976, all National Forest lands in Alaska will continue to be managed under the multiple use concept. However, ANILCA does provide for greater variety of uses in wilderness in Alaska including enhancement of fisheries habitat.

Item 7. Any assessment of resource and social values by the U.S. Forest Service include a full economic analysis of fish and wildlife resources and their human use.

Response: The economic values of the wildlife and fisheries resources on National Forest lands are included in the periodic ten-year assessment and five-year programs directed by the Resources Planning Act. This information, coupled with the reports required by ANILCA, will provide opportunity for consideration of the economic and social values of wildlife and fisheries resources in Forest planning. In addition, we include such analysis in the environmental assessments developed for each project.

Item 8. Selective cutting with techniques such as balloon and helicopter logging be considered by the U.S. Forest Service as an alternative to clearcutting.

Response: A 1979 cooperative agreement involving Alaska Lumber and Pulp Company, Pacific Northwest Forest and Range Experiment Station, and Alaska Region of the Forest Service established a research and demonstration program in this general area. Objectives of the program are to:

a. Determine cost effectiveness of a running skyline, interlocking line boom yarder.

b. Determine cost effectiveness and efficiency of advanced computer-assisted skyline layout.

c. Determine if decreased soil disturbance from log suspension will meet both silvicultural and watershed management objectives.

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Item 9. The State Forest Practices Act be amended to adequately address wildlife concerns.

Response: Wildlife concerns should be reflected in forest management. Review of the State Forest Practices Act is the perogative of the State Legislature; however, the State Board of Forestry would be an appropriate organization to provide recommendations to the Legislature on this matter.

Item 10. Major islands or management units as proposed for the Forest Service Regional Plan, whichever are smaller, should be used by the U.S. Forest Service as the basis for individual forest management planning units.

Response: The need to change management area boundries will be considered as a part of the review and revision of TLMP. We are able, in accordance with present direction, to consider wildlife and fisheries resources for each of the major islands, or parts thereof.

We appreciate your interest in this important subject and look forward to any thoughts you may have regarding our management of the National Forests.

Sincerely,

for Michael A Barton
JOHN A. SANDOR
Regional Forester

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